



# Chapter 16

## The Application of Personality and Intelligence in Education and the Workplace: The Introduction of Other Intelligences

### Key themes

- Personality and individual difference in education and work
- Learning styles
- Emotional intelligence
- Creativity
- Wisdom
- Giftedness
- Learning disabilities

### Learning outcomes

At the end of this chapter you should:

- Be able to present a general overview of how a number of personality and intelligence ideas have informed our understanding of education and work
- Understand the role and values that commonly known personality and intelligence tests have in predicting education and work achievement
- Be aware of Kolb's theory of learning styles and some of its criticisms
- Know how emotional intelligence theory informs our understanding of learning
- Know how emotional intelligence theory informs our understanding of leadership
- Be familiar with theoretical descriptions and models of creativity
- Be familiar with theoretical descriptions and models of wisdom
- Be able to outline a series of models that describe giftedness
- Be able to outline a theory and programme of Structural Cognitive Modifiability

## Introduction

In 1998, *Time* magazine sought to identify the greatest people of the twentieth century. In a special issue they considered great leaders, greater innovators, thinkers, scientists, artists and entertainers.

Were those who had achieved the most the greatest leaders? Or were they those who had defined and changed the political and social fabric of the world? Among those listed were Mohandas Gandhi, a political leader of India who led the struggle for Indian independence from the British Empire; Mikhail Gorbachev, leader of the Soviet Union from 1985 until 1991 whose attempts at reform led to the end of the Cold War; Franklin Delano Roosevelt, who led the United States through the Great Depression; and the Reverend Martin Luther King, the most famous leader of the American civil rights movement.

However, others were named by *Time* magazine: 'the Unknown Rebel', the anonymous man who in a single act became internationally famous when he was photographed standing in front of a line of tanks during the 1989 Tiananmen Square protests in China; Emmeline Pankhurst, the Victorian Englishwoman associated with her struggle for women's rights; Pablo Picasso, one of the most recognised figures in twentieth-century art; Bill Gates, successful businessman and chairman of the Microsoft Corporation; Albert Einstein, who proposed the theory of relativity and made major contributions to the development of quantum and statistical mechanics.

In the end, *Time* suggested the person of the last century was Albert Einstein, followed by Franklin Delano Roosevelt and Mohandas Gandhi.

Of course, achieving such greatness is beyond most people's wildest dreams. But how might we achieve greatly in our lives? How might we achieve our greatest potential and show leadership qualities where they are needed?

In this chapter we are going to look at some of the personality, intelligence and individual differences theories that surround education and work. We are going to take a wide view of education as it pertains not only to schools, but the workplace – and the environment in which you are most likely reading this book, university.

We are going to draw on many of the preceding chapters, not only the intelligence sections, and we will explore some ideas about personality and individual differences at work. However, our main focus in this chapter is to concentrate on theories that suggest how to create and build success in education and the workplace. In this chapter, we will cover:

- Personality and intelligence predictors of achievement in education and the workplace
- How a concept called learning style has helped us understand the way we learn
- How the concept of emotional intelligence is used in the workplace
- How psychologists have defined creativity and wisdom
- How giftedness is conceptualised by psychologists
- How individuals show leadership in education when working with those with learning disabilities.



Source: Grace/Zefa/Corbis

## Personality and intelligence predictors of achievement in education and the workplace

You may remember that in Chapter 12 we discussed the case of Robert Yerkes and the Alpha and Beta intelligence tests. At that time, the American Psychological Association

worked with the US Army to assess individuals' intelligence, thus enabling the army to classify and assign soldiers to suitable tasks. Since then, this approach – psychologically assessing people to predict not only what roles they should do but also whether they should be selected for a role – has been of interest to psychologists as well as employers, educators and governments.

## Established measures of personality and intelligence: predictors of achievement in education and work

In terms of the relationship between intelligence and academic achievement, evidence suggests that general intelligence shows a strong relationship with academic achievement. Remember that when it comes to size of correlations, a correlation of  $r = 0.1$  is a small effect size,  $r = 0.3$  is a medium effect size and  $r = 0.5$  is a large effect size (go to the online statistics chapter, Chapter 27, that accompanies this book if you want to read more on effect sizes).

There are a number of reviews by psychologists. Jencks (1979) reported correlations between general intelligence and academic achievement ranging from  $r = 0.40$  to  $r = 0.63$  for six longitudinal studies in the USA. American psychologists Alan Kaufman and Elizabeth Lichtenberger (Kaufman, 1990; Kaufman and Lichtenberger, 2005) provide a review of key papers that have looked at the correlation between general intelligence and school attainment and achievement. The authors conclude that the average correlation between IQ scores and a number of school indicators is around  $r = 0.50$ . Mackintosh (1998) estimates the correlation between generally intelligence and achievement at school to be between  $r = 0.4$  and  $r = 0.7$ .

In 2007, Ian Deary, Steve Strand, Pauline Smith and Cres Fernandes (Deary, Strand, Smith and Fernandes, 2007) reported on a five-year longitudinal study of over 70,000 English children which examined the association between general intelligence at age 11 years (as measured by the Cognitive Ability Test) and educational achievement in national examinations in 25 academic subjects at age 16. In this study the authors used GCSE scores to measure educational attainment, which is the General Certificate of Secondary Education [GCSE] and is the name of an academic qualification awarded in a specified subject and taken in a number of subjects (e.g. Mathematics, English, History) by students in secondary education. Table 16.1 shows some of the correlations between general intelligence and GCSE scores across a number of subject areas.

However, authors, such as Chamorro-Premuzic and Furnham (2006), have suggested that intelligence factors are not the only factors that predict academic success. Denis Bratko, Tomas Chamorro-Premuzic and Zrnka Saks' overview of the literature suggests that conscientiousness is the most consistent predictor of academic achievement (Bratko, Chamorro-Premuzic and Saks, 2006). These researchers suggest that conscientiousness personality traits lead students to be organised, disciplined and motivated to succeed. This in turn has a positive effect on their ability to study and on the effort and commitment they put into their work. Bratko and colleagues also suggest that the relationship between the other factors of personality and achievement are less clear and less consistent. For example,

**Table 16.1** Correlations between general intelligence and GCSE scores (Based on Deary *et al.*, 2007).

Subject	Correlation with general intelligence ( $r =$ )
GCSE total points	0.69
GCSE best 8	0.72
Mathematics	0.77
Biology	0.51
Chemistry	0.46
Physics	0.50
English	0.67
English Literature	0.59
History	0.63
Geography	0.65
French	0.64
German	0.61
Spanish	0.62
Drama	0.47
Art and Design	0.43
Music	0.54

Bratko *et al.* suggest that while neuroticism might cause people to perform badly in examinations due to their tendency to worry and be anxious before and during the examination, this worry and anxiety might make people work harder in the run up to the exam and therefore do much better. In a similar way, extraversion is inconsistently associated with academic achievement because extraverted people may be less worried and optimistic about examinations and therefore perform better in high-pressure situations such as examination, or, they may spend less time studying and more time doing other non-academic activities. Regardless of these speculations, it seems that conscientiousness, over the other personality factors, consistently predicts academic achievement.

Melissa O'Connor and Sampo Paunonen (O'Connor and Paunonen, 2007) carried out a meta-analysis (a technique that combines the results of several studies) of empirical studies that looked at the relationship between the five-factor model of personality and academic achievement. You will remember that the five-factor model comprises five personality dimensions (Costa and McCrae, 1992):

- openness (perceptive, sophisticated, knowledgeable, cultured, artistic, curious, analytical, liberal traits);
- conscientiousness (practical, cautious, serious, reliable, organised, careful, dependable, hardworking, ambitious traits);
- extraversion (sociable, talkative, active, spontaneous, adventurous, enthusiastic, person-oriented, assertive traits);
- agreeableness (warm, trustful, courteous, agreeable, cooperative traits);

- neuroticism (emotional, anxious, depressive, self-conscious worrying traits).

O'Connor and Paunonen found that conscientiousness was consistently associated with academic success. The overall correlation across the studies was  $r = 0.22$ , with the highest correlation being reported by Furnham *et al.* (2003) as being between conscientiousness and grade point average ( $r = 0.40$ ). They found that openness to experience was sometimes positively associated with scholastic achievement, with the highest relationship being reported by Dollinger and Orf (1991) with a correlation of  $r = 0.30$  between openness and exam grade, but the average correlation of the studies was low ( $r = 0.05$ ). Extraversion was also sometimes negatively related to academic success, with Furnham *et al.* (2003) reporting a significant negative correlation between extraversion and grade point average, though the overall average correlation was also low ( $r = -0.05$ ). O'Connor and Paunonen also found that very few significant relationships between academic performance and agreeableness (average correlation,  $r = 0.06$ ) and neuroticism (average correlation,  $r = 0.03$ ), leading to the suggestion that these personality dimensions may not be as relevant as predictors of academic achievement.

More recently, Poropat (2009) presented a meta-analysis of studies that examined the relationship between the five-factor model of personality and academic performance across studies totalling over 70,000 individuals. Poropat found that though agreeableness, conscientiousness, and openness were found to significantly correlate with academic performance, it was only conscientiousness that predicted academic performance independently of intelligence (when this was measured). Poropat (2009) also found that when looking at individuals in tertiary education (i.e. universities), when individuals' secondary-level performance (i.e. results from secondary school) was controlled for, conscientiousness was able to predict tertiary academic performance as much as intelligence did.

In addition to these findings, some authors have found that the narrow personality traits or facets (those traits in brackets in the list of the five factors above) were sometimes stronger predictors of academic performance than the five main personality factors. For example, O'Connor and Paunonen found that facets of conscientiousness, being achievement-oriented, self-disciplined, and diligent, were best predictors of academic success. This finding suggests that the five-factor personality factors are too broad and the facets are more useful in understanding the relationship between personality and academic achievement. So, for example, compare these two statements:

- 'Conscientiousness predicts academic achievement.'
- 'Being achievement-oriented, self-disciplined, and diligent predicts academic achievement.'

The second statement seems more meaningful and insightful when trying to understand why conscientiousness traits predict academic achievement.

Regarding job performance, research also suggests that intelligence is an important factor. Job performance can mean various things, but generally, US work psychologist Leaetta Hough, who served as president of the American Psychological Association Society for Industrial and Organizational Psychology, has defined several areas that indicate job performance (Hough, 1992). These include overall job performance (for example, ratings by employers, managers, the number of promotions the person has gained), poor behaviour (for example, lack of attendance of work through absence), competence, effectiveness, teamwork, creativity and effort.

In researching the area of intelligence and job performance, US psychologists John E. Hunter and R. F. Hunter (1984) provided a meta-analysis of studies that examined various predictors at the time of an interview for a job with eventual job performance. In all, the authors looked at results for over 32,000 workers. They found that the correlation between intelligence and job performance was  $r = 0.54$  (a medium-sized correlation), and it shared a lot larger association with job performance than with curriculum vitae ( $r = 0.37$ ), previous experience ( $r = 0.18$ ) and education ( $r = 0.10$ ). The first ever meta-analysis of this type in the United Kingdom was carried out by Cristina Bertua, Neil Anderson and Jesus F. Salgado, who looked at over 280 samples, comprising 13,262 people, and compared the scores on different intelligence measures with their job performance (Bertua, Anderson and Salgado, 2005). In this study, the researchers examined several different types of jobs, including clerical, engineering, professional, managers and sales; the requirements ranged from low-skilled jobs to higher-skilled professional jobs. Bertua and her colleagues found that both general intelligence and specific ability tests were good predictors of job performance, with correlations being similar to those reported by Hunter and Hunter (between  $r = 0.5$  and  $r = 0.6$ ).

With personality measures and job performance, findings are also relatively consistent. Of the various personality measures, research suggests that the five-factor model is the most useful in understanding the relationship between personality and job performance (Hough and Oswald, 2000; Salgado, 2003). Researchers have conducted several meta-analytical studies of the relationship between personality and job performance (Hough, 1992; Robertson, 2001; Salgado, 2003). Overall, findings suggest the following three things:

- Of the five factors, conscientiousness and low neuroticism are consistently related to a number of indicators of job performance.

- Of these two factors, conscientiousness and neuroticism, conscientiousness is a better predictor of job performance.
- In meta-analyses, openness, agreeableness and extraversion are not related to job performance. They have occasionally been related to job performance, but much less often – and not consistently (for example, extraversion is sometimes related to people in marketing).

On this last point Barrick and Mount (1991) reviewed 117 studies involving nearly 24,000 participants. These authors found that conscientiousness showed consistent positive relationships with work performance across a number of occupations, extraversion was a good predictor for jobs involving social interaction (e.g. management and sales), and extraversion and openness to experience were good predictors at individuals showing training proficiency.

You can see in Table 16.2 a comparison of those personality traits that consistently predict job performance and those that do not. Imagine that the traits in each column describe a different person that you are interviewing for a job. Which person would you be more likely to employ?

However, perhaps the best way to understand the relative importance of personality and intelligence is to compare the strength of different personality variables in predicting eventual job performance at the point of selection. Table 16.3 is a summary of such comparisons, based on findings from Anderson and Shackleton (1993) and Hunter and Hunter (1984). As you can see, personality and intelligence fare relatively well against various predictors of job performance.

**Table 16.2** A comparison of those personality traits that consistently predict job performance and those that do not.

Personality traits that consistently predict job performance	Personality traits that do not consistently predict job performance
Practical, cautious, serious, reliable, organised, careful, dependable, hardworking, ambitious, unemotional, not anxious, not depressive, not self-conscious, doesn't worry	Sociable, talkative, active, spontaneous, adventurous, enthusiastic, person-oriented, assertive, warm, trustful, courteous, agreeable, cooperative, perceptive, sophisticated, knowledgeable, cultured, artistic, curious, analytical, liberal

**Table 16.3** Comparison of the strength of different variables in predicting eventual job performance at the point of selection.

Assessment methods at selection	Correlation
Astrology (the study of positions and aspects of the planets and stars in the belief that they can influence the course of natural events and behaviour)	0.0
Graphology (the study of handwriting, employed as a means of analysing character)	0.0
Character references	0.13
Previous experience	0.18
Unstructured interviews	0.31
Curriculum vitae	0.37
<b>Personality assessments</b>	<b>0.38</b>
<b>Intelligence</b>	<b>0.54</b>
Samples of people's work	0.55
Structured interviews	0.62

### The difficulties with using established measures of personality and intelligence in education and work

Our European modern-day educational and workplace settings are not alight with a world of personality and intelligence theory and testing. The use of personality and intelligence in education and the workplace seems to be of limited interest to educators and employers. On one hand, they seem to be good, and relatively consistent, predictors of eventual education and job performance. However, using measures of personality and intelligence in the selection and assessment of individuals and their performance has not been enthusiastically received by people working in education and the workplace. There may be a simple explanation for this. Are intelligence tests and personality tests expensive and time consuming to use? Does personality and intelligence testing have a 'bad press'? For example, what would your view of intelligence testing be if you were a head teacher in a school and you knew about all the controversy over intelligence, and intelligence tests, that we have covered in the last three chapters? Or maybe intelligence and personality tests haven't had enough press. We would imagine that few employers know of the Hunter and Hunter findings of intelligence predicting job performance quite as well as it does. There are two other main, more detailed and research-based reasons for the seeming lack of enthusiasm by those working in education and the workplace:

- The relationships between personality, intelligence, education and workplace variables are not as straightforward as they first seem.



How similar are workplaces to school environments today?

- Established measures of personality and intelligence are not a first consideration by educators and employers.
- The world of work is constantly and rapidly changing, requiring people to be adaptable and flexible. Is a person with conscientiousness personality traits best suited to being flexible and adaptable?

We will now consider these two points.

### **The relationships between personality, intelligence, education and workplace variables are not as straightforward as they first seem**

There are many dimensions to both education and work. There are different subjects to be taught in school, different ways of assessing achievement, many different types of jobs in the workplace and many different types of responsibility. Therefore, perhaps intelligence and personality variables do not provide very adaptable constructs within which to assess educational and workplace factors. Take, for example, the finding of Leaetta Hough (Hough, 1997, 1998) and UK work psychologist Ivan Robertson (Robertson, 2001), that conscientiousness (practical, cautious, serious, reliable, organised, careful, dependable, hardworking, ambitious traits) is the strongest predictor of work performance. The finding is impressive, until we consider two points suggested by Hough and Robertson:

- A person with conscientiousness personality traits is cautious and careful. Therefore, would a person with conscientiousness personality traits be best suited to a job that requires creativity and innovation?

You can see that even with the most important personality predictor of work performance (conscientiousness), there is debate about its applicability across all job roles that are important in the workplace, particularly those that involve flexibility and adaptability. Consequently, as Robertson (2001) suggests, though conscientiousness and neuroticism are the consistent factors in predicting job performance, there is reason to believe that they may be redundant when considering certain types of jobs and the ever-changing world of education and the workplace.

### **Established measures of personality and intelligence are not a first consideration by educators and employers**

Personality and intelligence measures are not a first consideration in the minds of educators and employers; there are many more important non-personality and non-intelligence factors to be considered. For example, workplaces do not base their selection on personality characteristics, but rather on factors that employees will encounter within the job. Modern-day legislation on equal opportunities in the workplace makes it a legal requirement

for clear job descriptions to be written when advertising for a job. Therefore, personality and intelligence variables will not be at the forefront of any job description. For example, ‘must have good communication skills’ will always appear on a job description before ‘must be extraverted’ because the former clearly relates to a job skill, whereas the latter relates to general disposition in life. Equally, asking for someone to show they are intelligent in a job description and then giving them an intelligence test is somewhat redundant given that people outline their qualifications on their application. If someone has a university degree, this is already an indication of their level of intelligence across a number of skills, and perhaps a better one than a one-hour test made at an assessment centre where the person is feeling anxious and nervous. Therefore, though often used in large selection processes, measures of personality and intelligence are not usually employers’ first thought when devising a job role.

Equally, in schools, using personality and intelligence tests presents difficulties. Take, for example, intelligence tests. A child of 7 takes an intelligence test, but their IQ score is kept secret from the child. This is done so that if they have done poorly, they are not unfairly labelled as ‘unintelligent’ and thus discouraged from further study. Other teachers and parents aren’t made aware of a child’s IQ score for similar reasons; except perhaps in special circumstances when identifying children with learning difficulties, and then teachers and parents would be made aware of a low score – though not necessarily the actual score. So, we must consider to what extent an IQ score is important to pupils, teachers and parents, when the scores are mostly kept secret.

Given these two particular considerations, we can see that within education and the workplace, personality and intelligence scores may have predictive strength; but in the context of modern education and workplaces, there is little opportunity for teachers or employers to use this information. Despite the strength of personality and intelligence tests in predicting aspects such as job performance, it is easy to see why employers and educators may not consider the tests as central to the process of education and work.

So, what role does personality and intelligence research play in the modern workplace? In the remainder of this chapter, we are going to look at some personality, intelligence and individual differences theories and practices that have been met with more enthusiasm and interest in the education and workplace. To some extent, in considering these theories, we are now asking you to see a direct link between education and work. In today’s society, experiences in education (for example, school and university) and work are similar. Many skills that are learnt at school or university are designed to prepare you for adulthood and the workplace. Further, more and more workplaces encourage additional education of their staff members through staff development programmes.

The particular theories and practices we are going to focus on concentrate on successful learning, leadership and self-development in education and work. You will see what we mean by each of these concepts as we go through the chapter, but here it is worth pointing out a couple of things:

- These theories tend to concentrate on developing skills among individuals once they are in education and the workplace, rather than on selecting and assessing people and their potential. Therefore, the emphasis is on improvement rather than assessment.
- When we use the term ‘leadership’, we mean it in a very wide sense. Today, leadership is not just considered in the context of leading a company, organisation or political party. Rather, modern ideas of leadership extend from these traditional ideas of leadership to everyday situations: such as a teacher showing leadership quality to their class by demonstrating the importance of patience, a parent showing leadership qualities to their child by being responsible, or an adolescent showing a leadership quality among their friends by displaying strength of character.

In the rest of the chapter we are going to introduce you to these topics:

- Kolb’s learning styles model and experiential learning theory;
- emotional intelligence, self-directed learning and leadership;
- developing successful intelligences: creativity and wisdom;
- theories of giftedness;
- working with those with learning disabilities.

## Learning styles and experiential learning theory

In the 1970s US educational psychologist David A. Kolb introduced the concept of learning styles within his experiential learning theory (Kolb and Fry, 1975; see also Kolb, 1984). Kolb’s theory uses ideas from some theorists we have already covered in this book, including Jung, Rogers, Guilford and Gardner. The important aspects to Kolb’s theory are learning processes and learning styles.

### Learning processes

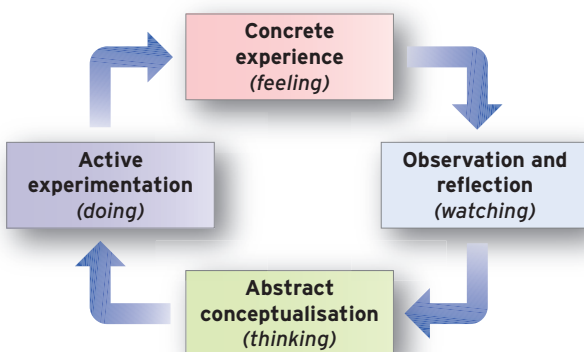
In his **experiential learning theory** (ELT), which emphasises learning relating to or derived from experience, David Kolb (1981) suggests there are four main aspects in learning:

- **Concrete experience (also known as *feeling*)** – Occurs when we learn through being involved in a new experience. For example, we might learn how to use a *new*

word processing package on the computer by loading it up and playing around with it.

- **Reflective observation (also known as *watching*)** – Occurs when we learn through thinking about our own experiences, or watching others, or learning from the experiences of others. For example, where we watch someone using the new word processing package and learn how to use the package by watching what they do.
- **Abstract conceptualisation (also known as *thinking*)** – Occurs when we learn by creating theories to explain our observations and behaviours. For example, we might have been using the new word processing package for a little while, seeing what it can do, and come to realise it is pretty much like all the other word processing packages we have used. The idea that our new word processing package is pretty much like all the other word processing packages would be our theory.
- **Active experimentation (also known as *doing*)** – Occurs when we learn by using theories to solve problems and make decisions. For example, we want to know how to do something on our new word processing package. We don't know how to do it; but our theory is that the new word processing package is pretty much like all the other word processing packages we have used. So, what we would do is hunt around until we find the operation or button that allows us to do what we want to do.

Kolb saw these four aspects of learning as a learning cycle (Figure 16.1). He suggested that the best learning experience occurs when you move from one aspect to another. Therefore, concrete experience is best followed by observation and reflection, which then leads to abstract conceptualisation, which then leads to active experimentation and then back to concrete experience to form a continuous cycle.



**Figure 16.1** Kolb's four learning aspects, presented in a cycle.

## Learning styles

Using these four descriptions of learning processes, Kolb identified individual differences in the way we prefer to learn. Kolb identified four learning styles: diverging, assimilating, converging and accommodating. Each learning style was made up of a combination of two of the learning processes described earlier and is best illustrated by the following matrix (Figure 16.2).

Kolb suggested the following four learning styles:

- **Accommodating** – This learning style combines the concrete experience and active experimentation learning processes, or *feeling* and *doing*. People who use an accommodating learning style (accommodators) tend to prefer to take a practical, hands-on approach. They will take risks, enjoy new experiences and work well in a role requiring action and initiative. An accommodator would work well in sales or marketing, as they go out and actively sell other people's products or information.
- **Diverging** – This learning style combines the concrete experience and observations and reflection learning processes, or *feeling* and *watching*. Divergers (as they are known) are people who are able to examine things from several different perspectives. They work best when they are watching situations and gathering information; then they use this information to generate ideas and suggest solutions to problems. They are emotional, creative and enjoy working with people. Divergers are best when working in groups and excel in

	Active experimentation (doing)	Observation and reflection (watching)
Concrete experience (feeling)	Accommodating	Diverging
Abstract conceptualisation (thinking)	Converging	Assimilating

**Figure 16.2** Four types of learning styles: diverging, assimilating, converging and accommodating – based on combinations of learning processes.



brainstorming situations. A diverger would work well in counselling.

- **Converging** – This learning style combines the active experimentation and abstract conceptualisation learning processes, or *doing* and *thinking*. Convergers are problem solvers who are interested in solving practical issues. Convergers do well at applying ideas and theories to practical situations and coming up with answers. They tend not to be emotional and prefer working with ‘things’ rather than other people. Convergers would work well in physics or areas using mathematics.
- **Assimilating** – This learning style combines the observation and reflection and abstract conceptualisation learning processes, or *watching* and *thinking*. Assimilators prefer a logical approach and prefer concepts over emotion. They are able to understand a lot of information and organise and integrate it into a logical format. They enjoy theorising rather than practical application. Assimilators work well in areas where things are planned, such as political or social policy.

Figure 16.3 shows Kolb’s four learning processes, presented as a cycle with his learning styles displayed on the outside.

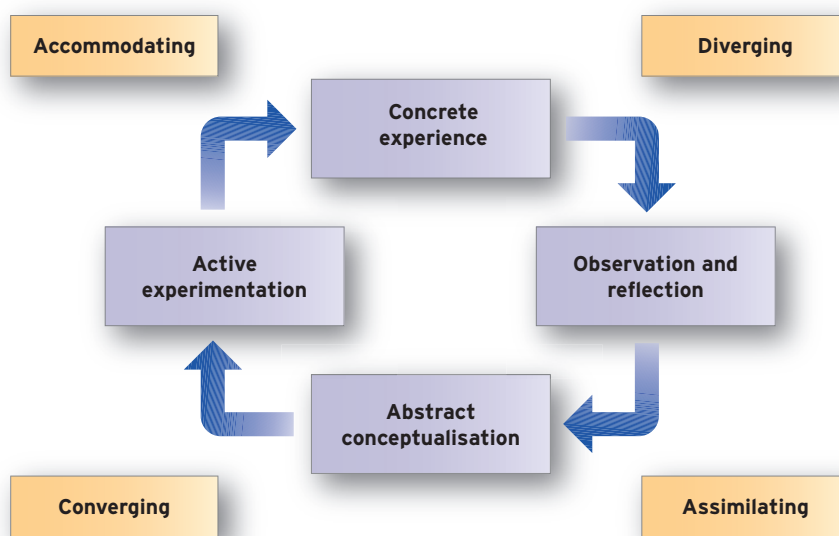
## Application and measurement of learning processes and styles

Kolb suggested that successful learning comes from engaging in all four learning processes. He felt that this would

help individuals develop different learning styles. Kolb’s work has been used extensively in schools and the workplace, because it clearly addresses the way that people learn and work together. It is suggested that the ideal teaching situation, such as a lecture at university, involves all the learning processes; the lecture not only visits the full learning cycle but also captures the whole audience through using all the learning processes. You can also see the advantage for employers in assessing people for their learning styles to see whether they fit the demands of the job. For example, there would be no use, according to Kolb’s theory, in placing a person who has an assimilating learning style (someone who is logical and lacks emotion) into a counselling role.

Kolb argued that people sometimes rely too heavily on one learning style and don’t look to develop their other learning processes or styles. Donna Smith and David Kolb (Smith and Kolb, 1986) have suggested that we might rely too heavily on a particular learning style for these reasons:

- **Personality** – A person who is high in extraversion may be drawn to those learning styles that emphasise action (accommodating) or working with people (diverging).
- **Schooling** – At school people learn to learn in different ways, and your learning styles may depend on the teaching approach used at that school.
- **Current job or task** – Your current job demands may lead you towards a certain learning style. For example, if you are a physicist you may have to rely on the converging or assimilating learning style.



**Figure 16.3** Kolb’s four learning processes, presented as a cycle, with his learning styles displayed on the outside.

## Profile



### David A. Kolb

US educational theorist David A. Kolb was born in 1939. He received his BA from Knox College in 1961, his MA from Harvard in 1964 and his PhD in Social Psychology from Harvard in 1967. Since 1976 he has worked at Case Western Reserve University, where today he is in the Weatherhead School of Management.

He has received four honorary degrees, received several awards (including two by the Council for

Adult and Experiential Learning), worked on the editorial board of five occupational and educational journals and has published nearly 100 books, book chapters and journal articles. Besides his work on experiential learning and learning styles. Kolb writes on thinking around organisational behaviour, conversational learning and innovation in professional education.

Kolb's 12-item Learning Style Inventory (Smith and Kolb, 1986) is used to measure learning style, which is now in its third version (Kolb Learning Style Inventory – Version 3.1 [LSI3.1]). This scale quite simply asks people for their preferred way of learning. Respondents are asked to answer very simple forced-choice questions. For example, here is an item from the Learning Style Inventory. Respondents are asked to choose the description that best suits them.

When I learn:

- \_\_\_\_\_ I like to deal with my feelings (concrete experience learning).
- \_\_\_\_\_ I like to watch and listen (observation and reflection learning).
- \_\_\_\_\_ I like to think about ideas (abstract conceptualisation learning).
- \_\_\_\_\_ I like to be doing things (active experimentation learning).

As you can see, these questions are measuring Kolb's learning processes. Then, individuals' scores on each learning dimension are used to categorise them into a particular learning style (either diverging, assimilating, converging or accommodating).

### Critical consideration of Kolb's theory

UK educationalist James Atherton (Atherton, 2002) suggests that Kolb's theory has produced one of the most useful models of learning because it gives tutors a way to ensure that teaching and learning are effective. Other commentators, such as UK educationalist Peter Jarvis (Jarvis, 1995), have suggested that Kolb's theory has had an important impact on educational and work theory and practice because it emphasises the learner, not just the instructor, as important in the learning process.

However, there are some criticisms of Kolb's theory and approach. For example, educationalist Alan Rogers (Rogers,

1996) suggests that the theory is too narrow. It does not account for many factors in an individual's learning, such as their goals, their purpose for learning, their intentions and whether they are in fact learning. Jarvis also suggests that Kolb's theory suffers because it doesn't take account of culture or particular conditions that surround teaching. Furthermore, empirical support, by way of research studies supporting the model, is weak (Jarvis, 1995; Tennant, 1997).

## Emotional intelligence in education and the workplace

In Chapter 15 we mentioned Daniel Goleman's theory of emotional intelligence. As you may not have studied this, or may need a reminder on it, we will briefly summarise the main elements of the theory here and then discuss the application of emotional intelligence to education and the workplace (however, if you want more detail, we suggest you go back to Chapter 15. Please note that we detail a number of studies looking at the relationship between emotional intelligence and achievement in education and workplace in that chapter as well.)

### Goleman's theory of emotional intelligence

Goleman's theory of emotional intelligence (Goleman, 2001; Goleman, Boyatzis and McKee, 2002) comprises four elements:

- **Self-awareness** – the ability to identify one's own emotional states.
- **Self-regulation/management** – the ability to manage one's own emotional states.
- **Social awareness** – the ability to assess and influence others' emotions.

- **Social skills/management** – the ability to sustain good interpersonal relationships.

Goleman made two distinctions between these four emotional intelligences.

- The first distinction is between *personal* and *social* competencies. The first two aspects, self-awareness and self-regulation, are personal competencies, while social awareness and social skills are social competencies.
- The second distinction is between *recognition* and *regulation*. Self-awareness and social awareness are emotional intelligences that are defined by recognition (the ability to identify one's own emotional state and those of others). Self-regulation and social skills are emotional intelligences that are defined by regulation (the ability to manage one's own emotional states and good personal relationships).

In this section of the chapter we are going to give you two examples of how this model has been used in education and the workplace. The first is in leadership; the second is in self-learning.

## Emotional intelligence and leadership

Goleman *et al.* (2002) used Goleman's model of emotional intelligence and the distinctions between personal/social

and recognition/regulation competencies to show how the model could be shown in leadership skills. In all, Goleman *et al.* suggested a good leader in the workplace would show the emotional intelligences listed in Table 16.4.

Much of Goleman's research is making the world of work aware of the importance of emotional intelligence. One particular area that Goleman emphasises is in developing and encouraging the heads of organisations to develop emotional intelligence competencies.

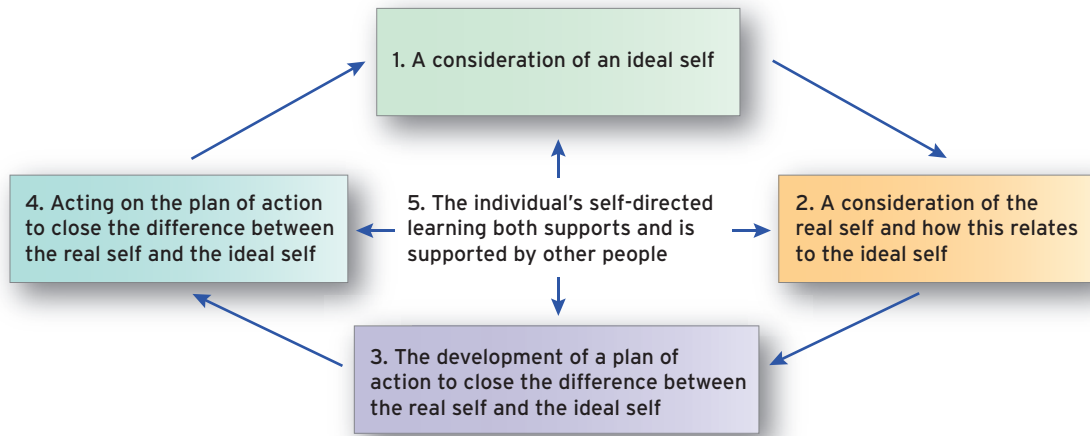
## Emotional intelligence and self-learning

However, Goleman's theory of emotional intelligence does not just lend itself to leadership of companies. Recently, theory and practice suggests that emotional intelligence ideas can be extended throughout the workplace and used to encourage us all to adopt leadership qualities.

A central figure in this development is US psychologist Richard E. Boyatzis, who alongside others including Daniel Goleman and the aforementioned David Kolb, developed a programme that guides individuals in the workplace through a process of self-discovery. This process is called self-directed learning (Boyatzis, 1994; Boyatzis, Cowen and Kolb, 1995; Goleman *et al.*, 2002).

**Table 16.4** Emotional intelligence in leadership.

	Personal competencies	Social competencies
<b>Recognition</b>	<p><b>Self-awareness</b></p> <p>Assessing and recognising one's own emotions.</p> <p>Accurately knowing one's strengths and limitations.</p> <p>Having self-confidence.</p>	<p><b>Social awareness</b></p> <p>Understanding and taking an interest in others.</p> <p>Recognising and meeting people's needs.</p> <p>Showing an awareness of relationships within the workplace.</p>
<b>Regulation/management</b>	<p><b>Self-regulation/management</b></p> <p>Adaptability and flexibility in dealing with situations that change.</p> <p>Ability to control emotions when working with people.</p> <p>Active, emphasises achievement, strives to do better, is trustworthy, has integrity and is optimistic in the workplace.</p>	<p><b>Social skills/management</b></p> <p>Able to provide guidance to people.</p> <p>Helps others improve their performance.</p> <p>Inspiring to others.</p> <p>Initiates change.</p> <p>Able to resolve conflict.</p> <p>Builds relationships with the organisation.</p> <p>Encourages teamwork.</p>



**Figure 16.4** Boyatzis' theory of self-directed learning.

There are five aspects to Boyatzis' theory of self-directed learning (outlined in Figure 16.4):

- a consideration of an 'ideal self';
- a consideration of the real self and how this relates to the ideal self;
- the development of a learning plan designed to close the difference between the real self and the ideal self;
- acting on the learning plan to close the difference between the real self and the ideal self;
- the individual's self-directed learning both supports and is supported by other people.

Boyatzis and his colleague Ellen Van Oosten (2002) suggest that you can build emotionally intelligent workplaces based on this theory, and suggest the five aspects of the self-learning theory represent five 'discoveries'. We will now outline these five discoveries so you can see how self-learning theory could be used.

- The first discovery is the discovery of the employee's 'ideal self'. The employee would consider who they want to be, what they want from work and life – for example, what their aspirations are.
- The second discovery is the discovery of one's 'real self'. Here, the individual would use Goleman's measure of emotional intelligence, the Emotional Competence Inventory. The Emotional Competence Inventory is a 360-degree instrument with which other people (for example, a manager or a colleague) evaluate the individuals within an organisation. The evaluator is asked to rate the person based on how characteristic the person is of the abilities listed in the emotional intelligence model. Example statements for rating the individual would include 'Presents self in an assured, forceful, impressive,

and unhesitating manner'; 'Respects, treats with courtesy, and relates well to people of diverse backgrounds'; 'Accurately reads people's moods, feelings or nonverbal cues'. Then the individual, with the evaluator, examines differences and overlaps between the person's concept of their ideal self (who they want to be) and their real self (what they have achieved).

- The third discovery is the development of a learning plan. This plan sets out the focus for the person's development. Each plan is centred on all of the individual's needs, including their job, their learning style preferences, their flexibility, their aspirations and the structure of their work and lifestyle. In all, this plan focuses on building on the person's strengths so they can close the gap between the real self and the ideal self.
- The fourth discovery is the discovery of new behaviour, new thoughts and new feelings when carrying out the learning plan. By acting on the learning plan, and experimenting in new practices, the individual will learn more about their self.
- The fifth discovery is the process of discovery encountered throughout the whole exercise. In working with someone else in the workplace, by engaging in reflection and in new behaviours, the employees are engaging in a process that will lead to the workplace becoming a better place.

### Consideration of emotional intelligence in education and the workplace

Using emotional intelligence in understanding leadership and the self-directed model has had some success in education and workplace settings. Goleman (1998) argued that numerous studies have shown that successful and

effective leaders use emotional intelligence more than others in leadership positions (Goleman, 1998). Goleman, Boyatzis and McKee (2002) have shown how promoting emotional intelligence using the self-directed learning model has been useful among postgraduate business and management students.

We have covered many of the criticisms of emotional intelligence in Chapter 15. The criticisms of emotional intelligence models in education and the workplace discussed in this chapter echo much of what we discussed in the previous chapter.

The first concern is directed at the fact that Goleman's model of emotional intelligence is a mixed model of emotional intelligence (those models that mix emotional intelligence and personality variables). Eysenck (2000) described the tendency to mix aspects of intelligence with personality factors as an unscientific approach. That is, if a mixed model of emotional intelligence is being applied to work and learning situations, we will never be sure whether the key variables in the development of leadership and self-learning are personality or emotional intelligence. Without such a distinction, this approach can be considered as rather unscientific. However, Goleman points out there is a priority in work and occupational psychology to identify, and encourage, the sort of competencies that are found in people who are leaders and high achievers without being overly concerned about the true nature of these variables. That is, what is important is knowing that these concepts

work, not finding out whether they are truly personality or emotional intelligence variables.

A second concern arises from the lack of empirical research or comparison surrounding these self-development programmes. While it is true that the emotional intelligence and leadership – and the self-directed model – have had some success, there has been little comparison of these models with other emotional intelligence or learning models. For example, reviewing your abilities, talking to someone about that review, coming up with an action plan and acting on it occurs in most education and workplaces today. What is different about Goleman's and Boyatzis' work is that they emphasise emotional intelligence. However, it simply hasn't been examined to consider the extent to which emotional intelligence provides a better framework over other development programmes that use a similar methodology but emphasise different abilities. For example, would a self-directed learning model that emphasises extraversion traits, rather than emotional intelligence, work just as well? Such an examination is hard to test because businesses and teaching establishments do not have the time or the inclination to test and compare the success of different models amongst their workforce and students. Rather, they want something that improves their workforce. On the face of it, programmes using Goleman's emotional intelligence models and Boyatzis' theory of self-directed learning suggest that emotional intelligence programmes seem to do this (Goleman, 1998; Goleman *et al.*, 2002).

## Stop and think



### Learning processes, learning strategies and emotional intelligences

Here are three brief descriptions of three different job advertisements. Assess which learning processes, learning strategies and emotional intelligences are required for each job.

#### Vacancy 1: Project manager in a multinational organisation

The External Relations team requires an experienced and enthusiastic professional to develop and implement communications projects. With a minimum of two years' communications experience, you will be a highly effective project manager with the ability to forge strong links internally and externally. You will be an excellent written and verbal communicator and have the ability to work to tight deadlines.

#### Vacancy 2: Data archivist in a physics lab

We are looking for an outstanding individual to manage the extensive data acquisition, storage and archiving systems on our computer system and to ensure that

they are maintained and upgraded to meet the growing demands of this world-class science facility. Job requirements:

- Take responsibility for the operation, use, access and security of online data store and upgrade the system as required.
- Predict computational and hardware requirements to capture, process and analyse data arising from future enhancements for the evolution of the data acquisition and storage systems.

#### Vacancy 3: Psychometric tester

Your major role in this post is to undertake the psychometric testing of children. You will also be providing sessional nursing support in each of the participating centres. You will be highly organised and have excellent communication skills. Previous experience in using developmental psychological tests and research experience is an advantage.

## Successful intelligence and leadership: creativity, intelligence and wisdom

In the last section we began to look at emotional intelligence and the concept of leadership. Much of this work has occurred in the workplace and some in universities. However, other intelligence theorists have emphasised the notion of encouraging leadership qualities throughout education.

Robert Sternberg (Sternberg, 2003, 2005) introduced a model of positive leadership called wisdom, intelligence and creativity, synthesised (WICS). In the WICS model, Sternberg argues that positive leadership can be developed from a set of attributes that we can all consciously develop. This means that they don't simply reflect some sort of natural ability or disposition, but rather that we control them and can learn them.

We will introduce you to wisdom and creativity synthesised in a moment. However, the second part of the WICS model, intelligence, has already been discussed extensively as part of Sternberg's triarchic theory of intelligence in Chapter 12. To summarise, you will remember that in his model of intelligence Sternberg suggested three elements:

- The componential subtheory, sometimes referred to as internal aspects of intelligence. This subtheory refers to the mental mechanisms that underlie intelligent behaviour.
- The contextual subtheory, sometimes referred to as external aspects of intelligence. This subtheory describes how mental mechanisms interact with the external world to demonstrate intelligent behaviour.
- The experiential subtheory relates to aspects of experience and was referred to as creative intelligence. This subtheory describes how experience interacts with the internal and the external world to form intelligence behaviours.

We are now going to concentrate on the other two elements of the WICS – creativity and wisdom.

### Creativity

Psychologists have studied creativity from a number of psychological perspectives. Though not directly linked to education or the workplace, we feel it is worth digressing a little and spending some time outlining some of the main theories of creativity, before outlining a theory of creativity that is directly focused on leadership, because it (1) provides you with some of the main theory and findings in the creativity literature and (2) show you some examples about how creativity is linked to intelligence theory.

The most worthwhile distinctions in individual differences was made by Rhodes (1961/1987), and later used in a review of the area by Runco (2004), who have suggested four different approaches in the study of creativity: namely the 4 P's; Person, Process, Press and Product. The use of person, process, press and product by Rhodes is a way of conceptualising all studies on creativity. We will now briefly describe each category and give you examples of theory and research which fall under each category.

### Person

The *person* category of creativity includes theory and research that concentrates on the personal characteristics of the person; for example, a theory or research that looked at the motivation or particular traits as core characteristics of creative persons.

In terms of motivations that underlie creativity, good examples would be psychoanalytic theory or the work of Maslow. Within psychoanalytic thought it is suggested that creativity results from successful sublimation (a defence mechanism [see Chapters 2 and 3 of this book] which converts unconscious desires into constructive behaviours) of instinctual demands (Freud, 1936). Also, Maslow, whose hierarchy of needs we covered in Chapter 6, defined two aspects of creativity (Maslow, 1967): **primary creativity**, creativity involved in the person finding self-fulfilment (for example, painting a picture) and **secondary creativity**, those aspects of creativity that allow the person to be recognised in their chosen field (for example, putting on an art exhibition). So for example Maslow's primary creativity, in which the person finds self-fulfilment, would fall under the person category as a motivation.

In terms of personality, research has looked at the personality traits creative individuals typically possess by looking at a number of creative domains, such as art, literature and music. This has led to the development of traits measures such as the composite creative personality scale (Harrington, 1972, 1975). In measures like these a number of traits would be listed that would define creativity such as: active, artistic, assertive, clear thinking, clever, curious, demanding, enthusiastic, idealistic, imaginative, independent, insightful, inventive, original. Today the measurement of creativity can be found on the International Personality Item Pool (IPIP; Goldberg *et al.*, 2006; <http://ipip.ori.org/ipip/>). One scale on the site that measures Creativity contains the following items:

- Have a vivid imagination.
- Am full of ideas.
- Love to think up new ways of doing things.
- Have excellent ideas.

## Process

The *process* category focuses on the thought, actions and behaviours that underpin the creative process. For example, how does an individual come up with ideas? Theory and research in the process category typically look at cognitive processes.

In terms of formal theories of creativity that describe the process of creativity, one of the first to be published was by Graham Wallas (Wallas, 1926). In this model Wallas described creativity as a process comprising five stages arising when a problem is presented:

- 1 *Preparation*: Here the individual focuses first on the problem, explores the parameters of the problem and prepares to work on the problem.
- 2 *Incubation*: Here the individual internalises the problem into their unconscious.
- 3 *Intimation*: Here the person begins to 'feel' a solution to the problem.
- 4 *Illumination* or *insight*: Here the creativity emerges from the unconscious into conscious awareness.
- 5 *Verification*: This is where the idea is present in the person's consciousness, and they start thinking about the creative idea and apply it.

Another theory that describes the process to creativity is perhaps one of the most influential in the literature on creativity. Guilford (1967), an intelligence theorist we outlined in Chapter 12, worked in the area of creativity and made the distinction between convergent and divergent production, which has been later recognised as convergent and divergent thinking. Convergent thinking is when an individual tries to develop a single and correct solution to a problem. Divergent thinking is a thought process that involves the generation of ideas to a problem. So examples of divergent thinking include being able to brainstorm, breaking problems into parts, showing great thinking, understanding causality, identifying importance with topics, being able to appreciate known and unknown qualities. For many psychologists, divergent thinking is the best example of creativity (Glazer, 2009).

Other more recent models include Finke, Ward and Smith's (1992) 'Geneplore' model, in which creativity comprises two phases:

- A *generative phase*: This is where the individual constructs mental representations regarding being creative that are called preinventive structures, and
- An *exploratory phase*, where the preinventive structures are used to come up with creative ideas.

## Press

The *press* category focuses on the relationship between the creative individual and their environment. Press refers to the *pressures* on the creative process or on creative persons. Therefore this category considers environmental influences

such as cultural, organisational or family or peer pressures. For example are the individual's friends creative and influence the person to be creative? Or does being creative result from the state of interpersonal relationships, e.g. being in love or a relationship breaking up? (Runco, 2004). This category originates from the work of Murray *et al.* (1938) who distinguished between alpha and beta pressures. Alpha pressures are pressures that are obvious and measurable to all and therefore objective (it might be time allowed to be creative, e.g. one week to create something). Beta pressures are the individual's own interpretation of the pressure (i.e. some people might feel that one week is not enough time to be creative, while others will see one week as ample time to be creative).

A list of situational influences has been developed by a number of authors (Amabile and Grysiewicz, 1989; Wiit and Beorkrem, 1989; Runco, 2004). This list is usually broken down into those situational influences that promote creativity and those situational influences that inhibit (restrict) creativity.

Those situational influences that promote creativity include:

- freedom
- autonomy
- good role models and resources (e.g. funding, time)
- encouragement that specifically focuses on creativity
- freedom from criticism
- environments in which creativity is rewarded and failure at being creative is not fatal.

Those situational influences that inhibit creativity include:

- lack of respect (specifically when related to creativity)
- red tape (excessive regulation or rigid conformity to formal rules within the environment)
- lack of freedom, autonomy and resources
- environments in which creativity is not rewarded or discouraged
- negative feedback
- time pressures
- competition
- unrealistic expectations.

One interesting series of studies highlighted by Runco is the work of Mednick (1962) and Gruber (1981, 1988). Mednick highlighted the importance of time to creativity. He argued that original ideas are often very distant and apart from the original problems or an initial creative idea, and that to arrive at an idea took time as the person moves from a first idea to the final creative idea. Research confirms this view of the influence of time on creativity, rather than creativity comprising a 'lightbulb' moment when the idea suddenly emerges, the person needs to devote time to

thinking and coming up with ideas, and even spending time away from thinking about the problem is important to creativity (Gruber, 1981, 1988).

## Product

The *product* category focuses on outcomes or results of the creative process. So this might be studies of decisions made or ideas by the creative person or it may be publications, art, writing of the creative person. Often the study of eminent persons (e.g., great artists or thinkers) is a large feature within this category.

There is a wealth of literature that looks at the study of eminent persons and creativity. In the book *Genius and the Mind*, Andrew Steptoe examines the lives and works of several eminent individuals and examines how their creativity emerged (Steptoe, 1998). In this book Steptoe explores Mozart's precocity (early development or maturity), Byron's mania (excessively intense enthusiasm) and Shakespeare's literary brilliance and examines them as explanations of creativity. Another example of the study of eminent persons was carried out by Diamond, Scheibel, Murphy and Harvey (1985) who examined the brain of Albert Einstein (German-born theoretical physicist who made many contributions to physics including his special theory of relativity). Diamond and his colleagues examined the brain of Albert Einstein and found there was a significantly smaller ratio of neuron cells (nerve cells that transmit nerve signals to and from the brain) to glial cells (cells that provide support, nutrition and protection for neurons, known as the glue of the nervous system) compared to other 'control' scientists. Diamond *et al.* argued that this implied that Einstein's cortex (the structure within the brain that plays a key role in memory, attention, perceptual awareness, thought, language, and consciousness) may have had a different 'metabolic need' (a higher need for chemical reactions that occur in living organisms in order to maintain life) and this produced greater levels of creativity from associative thinking and the development of new concepts.

A more recent example of this type of study was carried out by Caroline Murphy who looked at the link between artistic creativity and psychopathology in the work of Salvador Dalí (a surrealist artist who was renowned for his outlandish art and persona). Murphy looked at Dalí's behaviour and art from various sources, including his autobiography, published interviews with himself, friends and family, information on his family history. Using such data, Murphy used two psychiatric assessment procedures: a computer program investigating the presence of psychotic disorder and a personality disorder questionnaire. On these assessment criteria Murphy found Dalí met the diagnostic criteria for several personality disorders (personality styles which deviate from expectations of one's own society), as well as for psychotic illnesses. For more on the

creativity and psychopathology debate, see the Stop and think box later in this chapter on page 435.

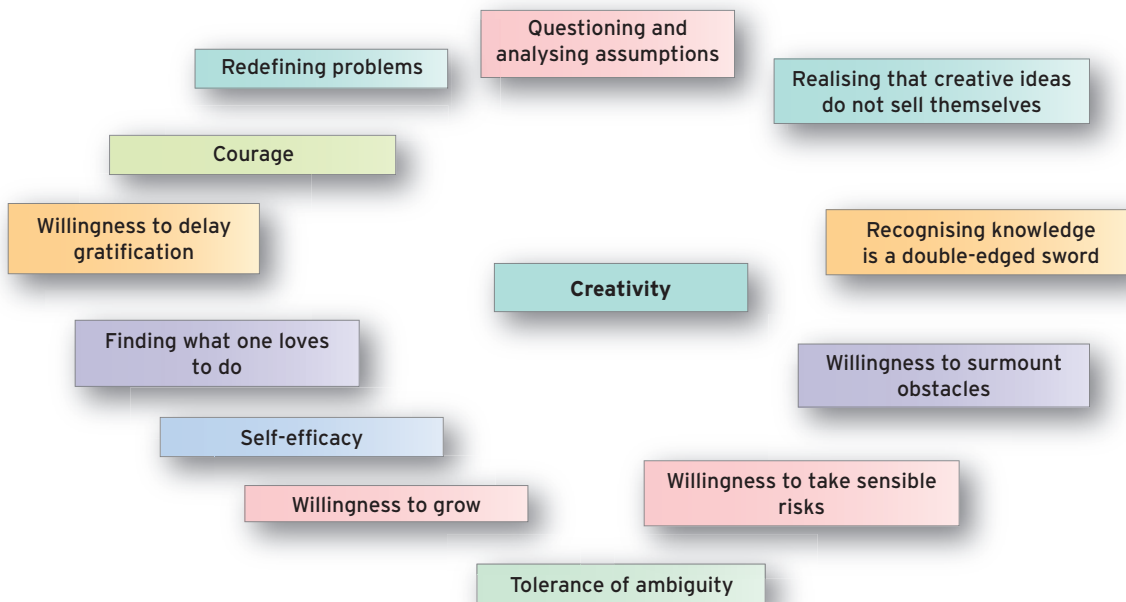
Clearly the extent to which these different theories of creativity are associated with education and the workplace varies. In the next section we are going to go into the detail of Sternberg's model of creativity because he sets creative leadership within the modern context of intelligence theory and education and the workplace.

## Sternberg's creative leadership theory: What constitutes creativity?

Sternberg argues that creativity is not limited only to great thinkers and artists, but is an ability anyone can have, develop and use. Sternberg (2005) defines creative leadership as being any of the following (see Figure 16.5):

- **Redefining problems** – This is the ability to take a problem and not just look at it from all angles but also 'turn it on its head'. Poetry and art are good examples of this. For example, in poetry, people use meaning and what they know to create new situations and descriptions; phrases such as 'falling snow bouncing on the ground' and 'lions gathering to speak about economics' are creative. Snow doesn't bounce, nor do lions speak about economics, but these phrases inject imagery to help us describe what is happening as well as how it is occurring. Perhaps it was a particularly strong flurry of snow, or the lions that gathered did so in a particularly organised and intense way.
- **Questioning and analysing assumptions** – Creativity can emerge from individuals questioning assumptions and then leading others to question those assumptions. Sternberg uses the example of Nicolaus Copernicus, an astrologer, astronomer and mathematician, who went against the thinking that the earth was at the centre of the universe and discovered that in fact it is the earth, as well as other planets, that go around the sun.
- **Realising that creative ideas do not sell themselves** – It is perhaps not good enough to be creative with your ideas; you also need to sell them. You may be a talented songwriter or politically brilliant, but you must also convince others that your ideas are good. If you are a songwriter, you must try selling yourself, touring, working on your self-image and approaching people in the industry. Equally, you may have great political ideas; but if you confine your views to the pub or dinner parties, then you are not going to become known for your political thinking.
- **Realising knowledge is a double-edged sword** – All creativity is built on knowledge. For example, you cannot come up with the theory about the earth revolving around the sun (as opposed to the other way round) unless you understand the laws of astrology, astronomy, and





**Figure 16.5** Sternberg's examples of different types of creativity.

Source: Based on Sternberg (2005).

mathematics. However, Sternberg also notes that having a lot of knowledge may blind you to certain ways of thinking, particularly creative ideas. Many experts in a field may prefer certain ideas, because they are so used to them. However, this may cause them reject new and creative ideas because they feel that they know all there is to know about the area. Therefore, creativity stems both from having knowledge and from not thinking you know it all.

- **Willingness to surmount obstacles** – Sternberg suggests that people who are creative often meet resistance to their ideas. Either they are ignored or laughed at. Creative leadership, then, is the ability to continue believing in your ideas, even when others ignore or laugh at them.
- **Willingness to take sensible risks** – Often in this world, the tendency is to do whatever everyone else is doing in order to succeed; for example, to do what one is told to do. However, eventually, creative leadership demands that the person comes up with new ideas. Creative ideas needn't have a large amount of risk or be outlandish, but to some extent they must have a degree of risk that other people admire and respect, constructively building on what is known or thought.
- **Tolerance of ambiguity** – We can be all uncomfortable with ambiguity, which occurs in situations where there is doubt or uncertainty. We like to know things for certain. We don't like to be faced with moral ambiguity; we like the idea that certain acts of crime will be punished appropriately and equally (we would not agree with the proposal that some people should be punished for a crime while others go unpunished). However, the world is full of ambiguity, and creative leaders are able to deal well with it.
- **Willingness to grow** – Creative leadership is not just about having one or two good ideas; it is about continually coming up with new ideas and conquering new challenges over a lifetime.
- **Self-efficacy** – An individual's personal judgement of their own ability to succeed in reaching a specific goal is the trait of self-efficacy. Creative leadership requires the person to believe they can be creative, and to believe in what they are creating.
- **Finding what one loves to do** – For a person to be a creative leader, they must find what they love to do. Sternberg suggests the best creative leaders excel in what they do because it is what they enjoy most in the world.
- **Willingness to delay gratification** – Being creative doesn't bring immediate rewards. There will often be a certain amount of time between someone coming up with a new idea, a new product or strategy and people eventually accepting it. Therefore, being creative does not bring immediate rewards; creativity demands some patience.
- **Courage** – Finally, being creative means going against what is accepted and can be unpopular. Therefore, to be creative sometimes takes a certain amount of courage.

## How does creativity occur? The 5 'r's' and the 1 'f'

Sternberg suggests that it is important for teachers, educators and workplaces to allow creativity in order to encourage creative leadership. To do this, there is the need to recognise the different types of settings that allow the encouragement of creative leadership. Sternberg suggests there are three such settings: creative leadership that (1) accepts current paradigms, (2) rejects current paradigms, and (3) integrates current paradigms.

### *Types of creative leadership that accept current paradigms*

Types of creative leadership that accept current paradigms are those that accept current assumptions, concepts, values and practices. Sternberg suggests three types of creative leadership that accept current paradigms: **replication**, **redefinition** and **forward incrementation**.

- **Replication** – This is minimal creative leadership. It is where the person comes in and maintains the level of creativity. For example, a manager may come into an organisation and keep the same assumptions, concepts, values and practices of that organisation. Therefore, the person may still show a level of creative leadership, but it is no more or no less than that of their predecessor.
- **Redefinition (appearing to be different)** – This is where the person comes in and maintains the level of creativity, but may give the impression of changing things. Therefore, a manager may come into an organisation and keep the same assumptions, concepts, values and practices of that organisation, but may suggest different ways of doing things in order to look creative.
- **Forward incrementation** – This is where the creativity propels an area forward, but within the assumptions, concepts, values, and practices that already exist. Therefore, a manager may come into an organisation and keep the same assumptions, concepts, values and practices of that organisation but propel the organisation forward through creative ideas or speed up creativity. An example of this may be a manager who starts work for an organisation selling a particular product through sales representatives. This manager suggests a policy to continue selling the product through their sales representatives, but they also add a website for the company to sell their product through.

### *Types of creative leadership that reject current paradigms*

Types of creative leadership that reject the current paradigm are those that seek to undermine or change current assumptions, concepts, values and practices. These three types of

creative leadership are **redirection**, **reconstruction/redirection** and **reinitiation**.

- **Redirection** – This is when the person takes an area in an entirely new direction. In an organisation this might be changes in their sales strategy, for example, moving from selling the product through their sales representatives on the road, to making it entirely web-based.
- **Reconstruction/redirection** – This is where the person revisits a previous point in creative development and then starts again by taking the area in a new direction. An example of this is when you're writing an essay. You have your notes as a starting point, and then you start to write your essay. However, halfway through writing your essay, you find that the approach you have used is not working. So, you start the essay again from your notes, taking it in a new direction.
- **Reinitiation** – This is where the person moves an area in a new direction from a new starting point. So for example, let us suggest that the current thought in an organisation is to expand a sales strategy from selling the product through their sales representatives in one country to hiring more salespeople across several countries to increase their market in those new countries. However, someone who was being creative through reinitiation might suggest moving all advertising onto the web so as to allow all the existing and new markets to come to them. Therefore, the person is not only taking the organisation in a new direction but also starting from a new point.

### *Type of creative leadership that integrate current paradigms*

The final type of creative leadership seeks to integrate two sets of assumptions, concepts, values and practices. This creative leadership neither accepts nor rejects current paradigms but aims to synthesise, unify and relate the paradigms to each other. So, for example, in a school where education of young people in terms of preparing them for their future is paramount, a creative leader might bring in a practice that is used in the world of work to improve young people's experiences of their future during education. This new idea doesn't reject the old idea that education of young people should prepare them for their future, but it brings together a number of ideas in a new setting.

## Wisdom

The definition of wisdom is to judge what is true and right and have some unique insight. To some extent, wisdom represents common sense, good judgement and the insight of generations. Sternberg, however, has written a series of papers on wisdom (Sternberg, 2001b, 2003, 2005) and



**Sometimes creative behaviour comes from a willingness to surmount difficult obstacles.**

Source: Christoph & Friends/Das Fotoarchiv/Alamy Images

designed them to show what wisdom comprises as well as how it can be taught and developed so individuals can begin to show wise leadership.

### Balance theory of wisdom

In Sternberg's theory of wisdom, the key term is 'balance'; hence the name, balance theory of wisdom. For Sternberg, wisdom is the need to achieve a common good while balancing several different factors (see Figure 16.6).

Therefore, in making a decision to achieve a common good, a wise person will:

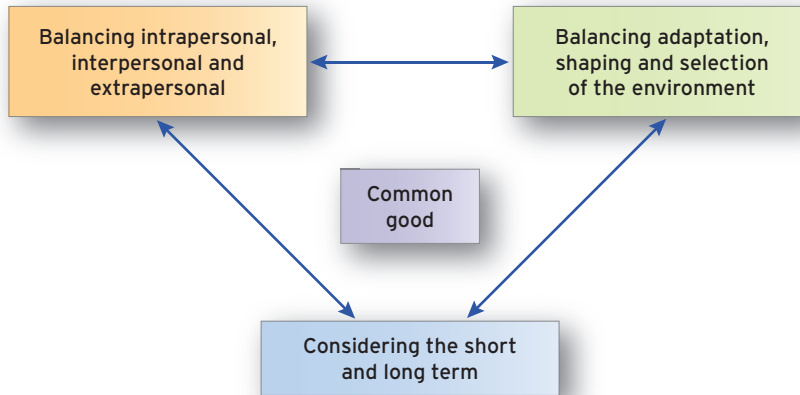
- Balance the **intrapersonal** (self-interests such as money, ambition in one's work, the desire to educate oneself more), the **interpersonal** (interests of others, such as their interest in money, their work ambitions, their need for good education) and the **extrapersonal** (the environment within which one lives, such as one's family, their community, one's country) when making a decision.
- Balance the short-term and the long-term consequences of any decision.
- Seek balance among existing environments when making the decision. To understand how the decision stands in the context of **adaptation** to existing environments (the individual being able to adapt to the world around them), **shaping** of existing environments (the individual also shaping the environment in some way) and the **selection** of new environments (being able to select one environment over another).

It is quite hard to see this process in operation, so let us use an example, perhaps the most classic and accepted case of wisdom, the act of King Solomon.

Two women bring a baby to Solomon. Each woman says that the baby is her child. As a test, Solomon decrees, 'Cut the baby in half and give half of the baby to each woman.' 'No!' screams the real mother. 'Give her the baby. Do not kill him.' Then Solomon knows who the real mother is because of the way she showed her love for the baby. He then gives the baby to the real mother.

Let us put this example within the terms of Sternberg's theory. First, there is the need to balance the intrapersonal, the interpersonal and the extrapersonal factors. Solomon has to balance his need to be seen as making a good and fair decision (intrapersonal) with the interests of each mother to keep the child (interpersonal) and the needs of his community and his kingdom for him to act like a king by providing a good and fair decision (extrapersonal).

Second is the need to consider both the short and long term. Here, Solomon considers the short-term outcome by coming to a quick decision because that is what the mothers are demanding (it would not be wise to say, 'let us wait until the child grows up and see who they look most like' before making the decision). He also considers the long-term outcome of making the correct decision so the child can be with its real mother.



**Figure 16.6** Sternberg's balance theory of wisdom.

Third is the need to find balance among existing environments. Clearly, Solomon balances these needs. He decides that he cannot simply *adapt* to the current situation and join in the argument; he has to somehow *shape* the current environment. In ordering that the child be cut in half, he thinks of new ways of reaching the truth; this allows him to arrive at a fair and just decision, thereby *shaping* the current environment.

### Teaching and encouraging wisdom and wise leadership

Sternberg (2005) suggests we can encourage and develop wisdom both in education and the workplace by encouraging wisdom in decisions, ideas and communications. In regard to developing and teaching wisdom, Sternberg suggests five issues that educators and employers need to be aware of:

- **Differences in the balancing of goals** – In Sternberg's model of wisdom, a central feature of the model is the desire to reach a common good. However, as individuals differ in their goals, they may differ in their desire to reach a common good or may believe in a different common good.
- **Differences in the balancing of responses to environmental contexts** – In this model of wisdom there are three ways in which we balance the environment: adaptation, shaping and selection. Of course, people are different, and they differ in their balance of responses to the environment. Therefore, for some people a wise decision may involve adapting to the environment; for others, it involves shaping or selecting their environment.
- **Differences in the balancing of interests** – Again, all people have different sets of interests. They themselves are balancing a series of interests when they have

prioritised what is important to them. In the workplace, some people will work mainly to earn money so they can support their family, or way of life, while for others work will be an important part of who they are.

- **Differences in the balancing of the short term and the long term** – People differ in the priorities they give to the short term and long term. For some people, the short term is most important ('you have to live for the moment'); for others, the long term has priority.
- **Differences in the balancing of procedure and values** – This aspect concentrates on something called tacit knowledge (knowledge based on understanding procedures rather than facts). The concern here is that people differ in the way they think decisions should be made. For example, some people may prefer a central individual to make the decision, while others may prefer to seek other's views first and discuss the issue openly.

In some ways you could consider these factors as suggesting a weakness in Sternberg's balance model of wisdom. These are fairly broad differences between people (goals, consideration for the long term, how people believe things should be carried out). However, you might also think that on consideration, these factors pinpoint the issues surrounding wisdom, so that we might better understand how people can arrive at wise decisions. Why? Well, because if you balance all these different concepts and ideas, strengths and weaknesses, and still think it is important to teach wisdom, it is perhaps a wise thing to do!

### Giftedness

We have so far discussed how people can develop abilities, be it in a learning style, emotional intelligence, creativity or wisdom. However, some people, from an early stage, show

tremendous natural intelligence abilities, better known as **giftedness**. We are now going to outline how intelligence theorists have helped us understand giftedness.

## Giftedness, termites and IQ scores

You will remember that one of the first developments in intelligence testing was made by Lewis Terman of Stanford (see Chapter 12). Terman introduced the Stanford-Binet test and went on to use it with over a thousand children. Terman also introduced Stern's idea of IQ in conjunction with the Stanford-Binet test.

Terman (Terman, 1925; Terman and Oden, 1947, 1959) is also known for one other development in the intelligence literature – his termites. From his PhD work, Terman wrote 'Genius and Stupidity: A Study of the Intellectual Processes of Seven Bright and Seven Stupid Boys.' Terman studied intelligence in a group of children from an early age into adulthood. This group of children became known as Terman's termites. Terman wanted to know whether children scoring higher on intelligence tests in childhood went on to achieve greatly in adulthood. He argued that special attention should be paid to those with high scores in intelligence tasks, and certainly to those falling within the top 1 per cent of IQ scores. Terman argued that gifted children should be identified as early as possible, be accelerated through school and be given a different curriculum and specially trained teachers. He also argued that such children should be viewed as a national resource, allowed to develop and direct their talents in any way that they emerge. Terman went on to study children and adults in their giftedness.

In later studies Terman went on to suggest that individuals scoring two standard deviations above the mean IQ score for their sample were found to be superior in physical, moral and behavioural dimensions (Terman and Oden, 1947, 1959). With these findings, Terman pushed for intelligence tests and estimates of IQ to be used among children so US society could identify and stimulate the most gifted. US intelligence theorist and researcher Carolyn Callahan (2000) stresses that this 'IQ' definition of giftedness tends to be accepted by most schools and businesses today. Traditionally, individuals seen as high achievers are often deemed so because they fall into the top 3 to 5 per cent of students as measured by intelligence tests.

Overall, recent findings suggest that IQ scores might be a good indicator of giftedness. For example, gifted children score significantly higher than non-gifted children for measures of overall intelligence on the Wechsler Intelligence Scale for Children – Third Edition, Stanford-Binet Intelligence Scale – Fourth Edition (SB-IV) and the Woodcock-Johnson III Tests of Cognitive Abilities (Rizza, McIntosh and McCunn, 2001; Simpson *et al.*, 2002).

## Modern conceptions of giftedness: not just high IQ?

However, many psychologists, researchers and educationalists have revisited what is meant by giftedness and have tried to expand the view of giftedness. In modern times we have a sense of what we mean by gifted. Or do we? Some people refer to highly intelligent people, particularly children, as gifted. Normally, it is always assumed that something unique about the individual has led to their giftedness. However, research suggests that giftedness may be influenced by several factors.

In 2005, French psychologist J. Louis and colleagues (Louis, Revol, Nemoz, Dulac and Fournieret, 2005) looked at a number of factors in high intellectual potential in 412 French children aged from 8 to 11 years. The researchers split this sample into two groups, and 195 children were in a gifted group. These were children who had scored 130 IQ points or above on the Wechsler test. They placed another 217 children in a control group; these children were randomly selected from schools. Louis *et al.* found that some psychophysiological variables were related to giftedness. Those children falling into the gifted group tended *not* to be children of parents who had abnormal pregnancies or perinatal (5 months before and 1 month after birth) stress and presence of migraine. Furthermore, Louis *et al.* found a link between parents living together with a good and superior level of education and giftedness in children.

In 2001, US educational psychologist Spyros Konstantopoulos and his colleagues (Konstantopoulos, Modi and Hedges, 2001) used the National Education Longitudinal Study of 1988 to describe how gifted American students differ from their non-gifted counterparts. The National Education Longitudinal Study is a nationally representative sample of US eighth-graders (12 to 13 years old) who were first surveyed in the spring of 1988 and then resurveyed through four follow-up studies in 1990, 1992, 1994 and 2000. On the questionnaire, students reported on a range of topics including school and home experiences; characteristics of their neighbourhood; educational support and resources; their perceived role of parents and peers in their education; educational and occupational aspirations as well as a number of other attitudes and behaviours. Konstantopoulos *et al.*'s findings indicate that students who are self-reliant and spend more time on homework assignments and leisure reading per week are much more likely to be academically gifted than other students. In addition, high levels of parental educational aspiration (wanting their children to do well), as well as high levels of family socioeconomic status (high income, good professional occupations) are important predictors of academic giftedness.

## Stop and think



### If wisdom shows leadership, why are some leaders foolish?

Are all leaders necessarily wise? It would be wrong to assume that just because wisdom reflects leadership qualities, it necessarily means that all leaders are wise. Sternberg (2002) notes that people who are placed in power – or gain positions of leadership – do not necessarily, or automatically, demonstrate wisdom. In fact, they can often be foolish. Sternberg suggests there are five reasons why as leaders, we can show ourselves as foolish.

- **Unrealistic optimism** – Leaders tend to use optimism to help people along. Optimism is a tendency to expect the best possible outcome in many, or all, situations. (You can read more about the different forms of optimism in Chapter 18.) You can see how instilling confidence in people in the future can be a leadership quality. However, though being optimistic is generally a good thing, being unrealistically optimistic is not a sign of wisdom. In being unrealistically optimistic, you begin to believe that no matter what you do, things will always have the best possible outcome. People who are unrealistically optimistic in their attempt to be wise will always believe they can do no wrong: therefore, this doesn't lead to wisdom, as there will be times when things don't work out for the best.
- **Egocentrism** – Egocentric individuals believe they are the centre, object and norm of all experience; they care only about themselves. Often great leaders see themselves at the centre of a particular world, and the people around them are followers. However, if you are egocentric, then you lose sight of all others' interests. You will thus be unable to balance other people's interests and the common good and undermine your attempts at wisdom.
- **Omniscience** – Omniscience is having total knowledge, knowing everything. To some extent, we expect our leaders to have a certain level of knowledge

above ours. But if, as a leader, you believe you know everything, you know you are always right, then how can you take account of everyone and everything and balance different factors? As a leader, you may be an expert in one area; however, believing that you are an expert in all areas is not a sign of wisdom, but foolishness.

- **Omnipotence** – Omnipotence is having unlimited or universal power, authority or force. Many leaders have a great deal of power, be it as the president of a country or as a manager at work. However, leaders must be careful not to lose sight of the limitations of their power and not to abuse it. A company manager may believe they can order people around unfairly because in their job description they are given the power to reprimand staff members who do not do what they say. But if their staff complains to the company's managing director, then the manager may find themselves being reprimanded. As such, omnipotence does not lead to wise decisions, but to decisions that serve the interests of the individual over those of other people and those that represent your community (for example, an organisation or a country).
- **Invulnerability** – Invulnerability is the tendency of a person to believe they are immune from hurt or attack, in this case against the position they currently hold. People may believe they are too clever or too important – that if they do anything wrong, they will get away with it. History has many tales of politicians or important people resigning because they originally felt they could get away with an indiscretion or something illegal, but then didn't. Believing that you are invulnerable, believing that your thinking or actions are above those of other people, are not indicators of wisdom, because you are serving your own rather than others' interests (for example, an organisation or a country).

Findings of this sort have led commentators to spread their conceptions of giftedness more widely to encompass dimensions other than very high IQ scores. The Council on Exceptional Children in 1990 (using information from Russell, Hayes and Dockery [1988] and Sisk [1990]) described the general characteristics of a gifted child. The Council for Exceptional Children based in Arlington, Virginia, in the United States is the largest international professional organisation dedicated to improving educational outcomes for individuals with exceptionalities,

students with disabilities and/or the gifted. The council suggested that the following factors typically indicate giftedness, though no gifted child is expected to be outstanding in all of them (Council for Exceptional Children, 1990):

- shows superior reasoning powers and marked ability to handle ideas; can generalise readily from specific facts and can see subtle relationships; has outstanding problem-solving ability;

- shows persistent intellectual curiosity; asks searching questions; shows exceptional interest in the nature of man and the universe;
- has a wide range of interests, often of an intellectual kind; develops one or more interests to considerable depth;
- is markedly superior in quality and quantity of written and/or spoken vocabulary; is interested in the subtleties of words and their uses;
- reads avidly and absorbs books well beyond their years;
- learns quickly and easily and retains what is learned; recalls important details, concepts and principles; comprehends readily;
- shows insight into arithmetical problems that require careful reasoning and grasps mathematical concepts readily;
- shows creative ability or imaginative expression in such things as music, art, dance, drama; shows sensitivity and finesse in rhythm, movement and bodily control;
- sustains concentration for lengthy periods and shows outstanding responsibility and independence in classroom work;
- sets realistically high standards for self; is self-critical in evaluating and correcting his or her own efforts;
- shows initiative and originality in intellectual work; shows flexibility in thinking and considers problems from a number of viewpoints;
- observes keenly and is responsive to new ideas;
- shows social poise and an ability to communicate with adults in a mature way;
- gets excitement and pleasure from intellectual challenge; shows an alert and subtle sense of humour.

Though we would recognise many of the attributes, here, as behaviours that we see in intelligence tests, this view very much widens out the range of what comprises giftedness.

## Psychological models of giftedness

Callahan (2000) suggests there are five main psychological theories of conceptions of giftedness:

- Sternberg's triarchic model of giftedness.
- Gardner's model of multiple intelligences and giftedness.
- Renzulli's three-ring definition.
- Tannenbaum's psychosocial definition.
- Feldman's developmentalist position.

You will probably recognise two of the names, Sternberg and Gardner. We are not going into depth regarding these two theories of giftedness, because these models are largely extensions of their intelligence models as presented in Chapter 12.

Sternberg's triarchic model of giftedness (Sternberg, 1997a) is based on his triarchic theory of intelligence (this we also mention briefly earlier in considering his wisdom, intelligence and creativity, synthesised theory). Sternberg suggests there are three distinct types of giftedness:

- **Analytical giftedness** – This type of giftedness arises from mental mechanisms that underlie intelligent behaviour (componential intelligence); for example, a great scientist (such as Einstein), good at solving abstract problems and generating theories.
- **Practical giftedness** – This type of giftedness arises from mental mechanisms interacting with the external world (contextual intelligence); for example, a great practical problem solver, such as a brilliant businessman).
- **Creative giftedness** – This type of giftedness arises from experience in interacting with internal and the external world (experiential intelligence); for example, someone who has intuition and insight and works well with novelty, such as a great writer like Shakespeare.

Similarly, Gardner's model of giftedness (Gardner, 1983, 1993) is based on his theory of multiple intelligences and is based on excellence in any one of nine dimensions of intelligence (linguistic, logico-mathematical, spatial, musical, bodily kinaesthetic, interpersonal, intrapersonal, naturalist and existentialist) being allowed to emerge and fully develop by encouragement from family, teachers and friends.

We are going to concentrate in this chapter on these three conceptions of giftedness: three-ring definition, Tannenbaum's psychosocial definition and Feldman's developmentalist position.

## Renzulli's three-ring definition

Joseph S. Renzulli, an American educational psychologist, suggested that giftedness can be conceptualised within three rings (Renzulli, 1978; Renzulli and Reis, 1997). Renzulli sought to promote a broadened conception of giftedness outside that which is usually determined by measures of intelligence and high IQ.

The important point to Renzulli's concept of giftedness is that giftedness comprises gifted behaviours rather than gifted individuals. These gifted behaviours are composed of three elements (rings):

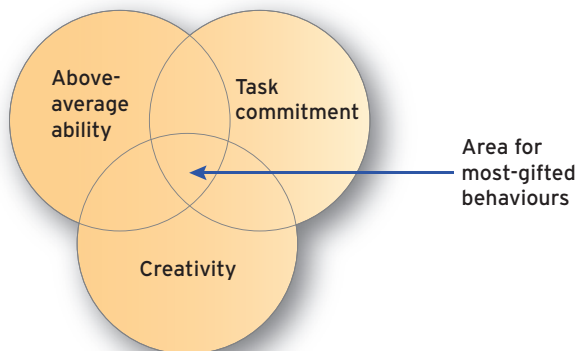
- above-average ability
- task commitment
- creativity.

Within Renzulli's theory, **above-average ability**, at a general level, represents high levels of abstract thought, adaptation to novel situations and the ability to rapidly and accurately retrieve information. At a specific level, above-

average ability comprises a high degree of applying general abilities to specific areas of knowledge, a capacity to sort out relevant from irrelevant information and a capacity to acquire and use advanced knowledge and strategies while pursuing a problem. **Task commitment** is the ability to show high levels of interest and enthusiasm for tasks, hard work and determination in a particular area, self-confidence and drive for achievement and setting high standards for one's own work. **Creativity** is the ability to show fluency, flexibility and originality of thought; be open to new experiences and ideas and be curious and willing to take risks.

Renzulli conceptualises giftedness within these three categories by using a diagram (see Figure 16.7), with the area in the middle representing most-gifted behaviours.

Renzulli argues that giftedness represents a balance of all three areas. So, for example, someone who is creative and has above-average ability is not likely to succeed or produce unless there is task commitment. Take, for example, a songwriter. This person can write songs (creativity); and when they write a song, it is considered a very good song that people enjoy (above-average ability). However, unless there is task commitment (the ability to produce many songs for successive albums), the songwriter is unlikely ever to be considered very gifted. For example, compare John Lennon and Paul McCartney of the Beatles with Hy Zaret and Alex North. 'Who', you say? Zaret and North wrote 'Unchained Melody', the most covered song of all time, which has been released 697 times and has been recorded by Bing Crosby, Elvis Presley – and the biggest-selling, Robson and Jerome(!). We can see how, in the case of Lennon and



**Figure 16.7** Renzulli's theory of giftedness.

Source: Reprinted from Renzulli, J. S. (1986). The three-ring conception of giftedness: a developmental model for creative productivity. In R.J. Sternberg and J. Davidson (Eds.), *Conceptions of giftedness*. Cambridge: Cambridge University Press. Reproduced with permission from Cambridge University Press.

McCartney, all these three elements of giftedness came together; though for Zaret and North, they did not.

### Tannenbaum's psychosocial definition of giftedness

US psychologist Abraham Tannenbaum (Tannenbaum, 1986) took a similar position to Renzulli in suggesting that the key to giftedness is the ability to produce, rather than consume information (Callahan, 2000). Tannenbaum suggests that developed talent exists only in adults, and that giftedness refers to a potential for becoming a great thinker, performer or producer of ideas that enhance many aspects of humanity (for example, physical, intellectual, emotional and social aspects of life). Tannenbaum referred to four types of talents:

- **Scarcity** – Talents that allow people to make breakthroughs in their field.
- **Surplus** – Talents that allow people to add to the beauty of the environment.
- **Quota** – Talents related to excellence in providing business, goods and services.
- **Anomalous** – Practical talents.

Whereas Terman had previously linked giftedness to adulthood as an eventual development of giftedness, Tannenbaum defined the sorts of talents that gifted individuals possess. Tannenbaum also emphasised those factors that link childhood giftedness to the four dimensions of talent in adulthood, including superior general intelligence (this is 'g' as measured by IQ tests), exceptional special aptitudes, non-intellective facilitators (e.g., high motivation, high self-esteem), environmental influences and chance or luck.

### Feldman's developmentalist view on giftedness: coincidence

US developmental psychologist David Feldman's view of giftedness rests on the concept of coincidence (Feldman, 1986; Feldman and Goldsmith, 1986). He argues that giftedness in adulthood is a coincidence of forces that have combined and worked together to produce the talented individual. He views these forces as:

- **Biological and psychological** – Factors lying within the brain and the mind that predispose the individual to giftedness (e.g., good cognitive processing skills).
- **Social and environmental** – Factors in the environment that are critical to the development of giftedness (good parents and good teachers).
- **Historical** – Reflects opportunities in the individual's life span to achieve this giftedness (for example, is the



area of the child's giftedness in the education curriculum of their country?).

- **Evolutionary** – Cultural and biological factors that support or hinder the development of giftedness.

Crucial to demonstrating Feldman's theory is the comparison of occasions when giftedness in adulthood emerges from childhood to other occasions when it does not. Morelock and Feldman (1991) use the example of many women who may not emerge as gifted in adulthood, though they have been identified as having the potential in childhood. These authors suggest that additional barriers are raised by stereotypes of female roles and behaviour in society preventing the coincidence of forces to produce giftedness. For example, domestic and child-rearing responsibilities have historically interfered with females being able to express their ability in the arts and sciences. More recently there are attitudes with society that may impede career and academic development among women, such as a 'fear of success' or 'being viewed as unwomanly'. Morelock and Feldman have suggested that for female children to become gifted in adulthood, it is important that parents become aware of the possibility that their daughters might be gifted, that the daughters have teachers who identify and value achievement in young women, and that their society facilitates and encourages female giftedness at all levels.

## Summary of giftedness

The psychology of giftedness started with Terman's emphasis on excellent performance in measures of intelligence (i.e., high IQ). Later concepts of giftedness have expanded on this view, suggesting that biological as well as family-, education- and society-based factors all influence giftedness. Theorists such as Renzulli, Tannenbaum and Feldman have sought to expand on Terman's work by providing models of the key aspects of giftedness.

## Working with those who have learning disabilities

So far in this chapter, we have talked about theories of excellence and improvement in education and the workplace, including learning styles, emotional intelligence, creativity, wisdom and giftedness. However, to this point we have neglected one core area. How do we translate some of the attempts to improve and reach our potential to teaching those who have learning difficulties?

To fully understand the context of present approaches to teaching those with learning disabilities, it is important, first, to outline the history to such approaches. In this section we are going to introduce you to two historical lines in

the work with learning disabled individuals: (1) the darker historical line and (2) the positive historical line. We will then see how the positive history underlies the most dominant and well-recognised work in learning disabilities today, the work of Reuven Feuerstein.

## Working with those who have learning disabilities: the darker historical line

In Chapter 14 we spoke about a darker side of intelligence testing from the early part of the twentieth century to the Second World War. We noted that the consideration of people's intelligence, and intelligence testing, had been linked to the development of eugenics, first starting with Galton; and we discussed how eugenics views had made their way into social policy, politics and the law.

During that time, people with learning disabilities were seen as mentally retarded. For example in 1921, the American Association of Mental Retardation defined three levels of 'mental retardation': 'moron' (for those with an IQ score of 50–75), 'imbecile' (for those with IQ scores of 25–50) and 'idiot' (for those with an IQ score of less than 25) alongside strongly recommending using the Binet intelligence test as a method of assessing IQ.

In the United States, in 1922, a member of the US House of Representatives Committee on Immigration and Naturalization (H. H. Laughlin) published the Model Eugenical Sterilization Law. This formed the basis of state sterilisation laws; and in it, Laughlin listed the types of people who were to be subjected to mandatory sterilisation (including those considered mentally retarded). In 1927, the US Supreme Court ruled in the case of *Buck v Bell* and supported a new legislative law in the state of Virginia. The law concerned a 17-year-old woman named Carrie Buck, who was a resident at the Virginia Colony for the Epileptic and Feeble-minded – an asylum home for epileptics, the mentally retarded and the severely disabled. Carrie had the IQ score of a 9-year-old; her mother, also resident at the Colony, had a mental age of less than 8. Carrie Buck had given birth to a daughter who at one year old was given an infant IQ test and found to be less than normal. In response to this finding, the State of Virginia wanted to have the child sterilised against her will. The US Supreme Court ruled in favour of the enforced sterilisation. In writing up the decision, Justice Oliver Wendell Holmes wrote, 'three generations of imbeciles are enough'. By that part of the twentieth century, 29 US states had laws allowing the compulsory sterilisation of individuals thought to be mentally retarded, alcoholic or 'having a criminal nature'. In 1945, information from the Journal of the American Medical Association suggested that between 1941 and 1943, over 42,000 people were sterilised in the United States.

## Stop and think



### Creativity, giftedness and 'psychopathology'

In the last few sections of this chapter we have outlined theories of creativity and giftedness which give accounts of creativity in the context of both everyday thought and in high levels of creativity representing giftedness. Within psychology there is another side to creativity and other indicators of immense creativity such as giftedness. Aristotle, the Greek Philosopher (384 – 322 BC) said 'No great genius was without a mixture of insanity', and since then it is well documented that great creative figures in history have shown signs of psychopathology. Vincent Willem van Gogh (1853–1890) was a Dutch Post-Impressionist artist and some of his paintings are now among the world's best known and most expensive works of art. Van Gogh cut off the lobe of his left ear in 1888 and it is recognised that he was affected by increasing mental problems, particularly in the last years of his life, but the causes are often debated. John Forbes Nash, an American mathematician, economist and Nobel laureate whose published key idea in game theory was recognised as genius, has struggled with schizophrenia all his life. Recently in *the Independent*, John Walsh (Walsh, 18 March 2007) looked at examples of madness and creativity in modern creative figures. He highlighted Stephen Fry (a British comedian) who in a TV documentary *The Secret Life of a Manic-Depressive* talked about how many highly intelligent, creative people (e.g. Robbie Williams being one) have been diagnosed with manic-depression (a condition with mood swings from overly 'high' (manic) to overly 'low' (depressed) moods. In this documentary Fry said that many victims of the condition preferred to endure the aching chasms of depression without therapy or drugs, because of the creative high they experienced in the manic stage.

Within psychology, the associations between high ability or higher levels of thinking (be it creativity or giftedness) and different forms of psychopathology are best examined within the creativity and psychopathology literature. Creativity has been long associated with different types of mood (high and low levels of anxiety and depression), neuroses (anxieties, compulsions, obsessions and phobias), mental rumination (reflection that may become persistently worrying), schizophrenia, psychosocial problems and suicide (Nettle, 2001).

In 2009, University of Oxford UK psychologist Emilie Glazer (Glazer, 2009) provided an excellent summary of modern psychological debates regarding the association between creativity and psychopathology. In this summary Glazer first highlights how researchers have conceptualised the causal relationship (which concept causes which concept) between creativity and

psychopathology. First Glazer points to Richards and Kinney (2000) who have argued there are five possible relationships:

- Psychopathology directly causes creativity
- Psychopathology indirectly causes creativity
- Creativity directly projects (being placed) onto the psychopathology
- Creativity indirectly projects onto the psychopathology
- A third factor influencing the relationship, such as a family disposition for the psychopathology.

Glazer also points to Ludwig (1995) who has argued that there are four ways to conceptualise the relationship between creativity and psychopathology:

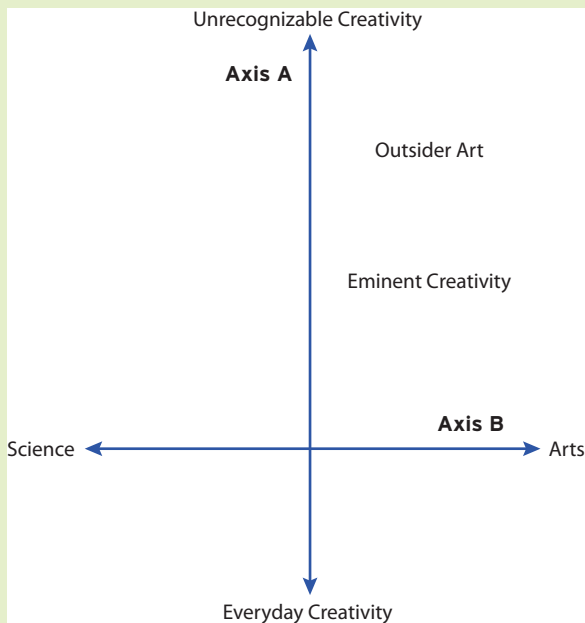
- Psychopathology causes a decrease in creativity
- Psychopathology causes an increase in creativity
- Creativity enhances the psychopathology
- Creativity alleviates the psychopathology.

Glazer suggests that perhaps the best way to conceptualise the relationship between creativity and psychopathology is as complex and the relationship depends on the individual being studied, the type of psychopathology and the types of environmental factors involved. Glazer suggests three possible models for understanding creativity in terms of psychopathology as follows:

- The existence of different kinds of creativity each associated with specific types of psychopathology
  - Creativity operating as a continuum
  - Creativity as a single entity.
- 1 The existence of different kinds of creativity each associated with specific types of psychopathology. Glazer considers whether there are different types of creativity based on the type of psychopathology, drawing on the distinction between schizophrenia (a mental disorder characterised by abnormalities in the perception or expression of reality) versus affective disorder (mental disorder characterised by dramatic changes or extremes of mood). Here Glazer uses Sass' (2001) analysis to draw the distinction between different kinds of creativity in terms of 'normal' creativity and 'revolutionary' creativity. Sass argues that individuals with affective disorders are preoccupied with the cultural norms around them. Therefore in manic (highs) states in the affective disorder individuals claim great grandiosity within a social hierarchy, and when depressed, they have a heightened sensitivity to social phenomena, feeling themselves overly attached to the world. Therefore Sass argues that

affective disorder is related to creativity limited to the 'normal', observations around everyday life, concentrating on feelings. This may be why comedians with affective disorder, such as Stephen Fry, and notably Tony Hancock, produce comedy that is often concerned with the absurdity of everyday life. Moreover Sass argues that the person with schizophrenia, who is suffering from altered states of perception or expressions of reality is further detached from the world, works free of social boundaries, and considers alternative views of the world, or perceives things differently and this predisposes them to 'revolutionary' creativity. In the art world for example, they distinguish between *depressive* art, which tends to focus on emotions and feelings, and *schizophrenic* art, which tends to be emotionally distant and sometimes surreal (bizarre or dreamlike). For researchers in creativity and psychopathology, such as Claridge (1998), the distinction between affective disorder and schizophrenia, provides useful parameters for any researcher looking at the relationship between creativity and psychopathology.

- 2 Creativity operating as a continuum. The second way Glazer suggests we examine creativity is as operating as a continuum. There are two parts to this model which are both illustrated in Figure 16.8. Axis



**Figure 16.8** Creativity operating as a continuum (Based on Glazer, 2009).

A corresponds to the extremities of creativity ranging from everyday creativity to the genius work of the eminent, and then outsider art and then unrecognisable creativity. Outsider art means 'raw art' or 'rough art' and was a description created by French artist Jean Dubuffet to describe art created outside the boundaries of official culture. Dubuffet argued that art created by insane-asylum inmates and that of the mentally ill are the best examples of outsider art (Glazer, 1999). Glazer notes that unrecognisable creativity comprises remote creative associations that extend past culturally recognisable work. Glazer argues that as the axis extends from the everyday to the work of the eminent, to outsider art, and then unrecognisable creativity there is an increasingly higher likelihood of psychopathology or psychopathological tendencies. That is not to say that all people on this axis are likely to have a psychopathology, but that there is a great probability that individuals higher up on this axis will have a psychopathology. Axis B represents creativity of the sciences to creativity harnessed in the arts and therefore creativity and psychopathology can be understood within the interaction of these two axes forming four quadrants.

- 3 Creativity as a single construct. The final model presented by Glazer is creativity as a single construct: divergent thinking. We talked about this earlier in the chapter under creativity as a process and Guilford's initial work. However, to remind you, divergent thinking is a thought process that involves the generation of ideas. So an example of divergent thinking might be the ability to brainstorm, breaking problems into parts, showing great thinking, understanding causality, identifying importance with topics, being able to appreciate known and unknown qualities. Glazer maintains that divergent thinking is a feature of all the main theories of creativity. For examples of this see the models of creativity and giftedness outlined in the main text of this chapter, e.g. Sternberg, Gardner, Renzulli, Tannenbaum and Feldman. All these models describe thinking that could be described as divergent thinking. Glazer argues that the relationship between creativity and psychopathology may be best understood within a single construct of different levels of divergent thinking.

This is a commonly told story of the relationship between intelligence and people with learning disabilities. However, it would not be fair to assume all people working in intelligence worked within that perspective. Another historical line, which stretches as far back as the beginning of intelligence theory in psychology, has a much more positive side to it. That line leads us to modern-day thinking and practice in working with those who have learning disabilities.

### Working with those who have learning disabilities: the positive historical line

The positive historical line of those working with learning disabilities starts with a French physician called Jean-Marc Gaspard Itard (1775–1838) and a young boy who became known as the ‘wild boy of Aveyron’ (Itard, 1801/1962).

In 1799, a young boy, thought to be around 11 or 12 years old, was found in a wood in Southern France. He was naked, filthy and didn’t speak. Very quickly he was placed in care and eventually was taken to Paris where he could be studied. At that time, Jean-Marc Gaspard Itard was a chief physician with the National Institution for Deaf-Mutes in Paris. While other physicians declared that the boy was not wild, but rather had been abandoned by his parents due to being mentally deficient, Itard believed his mental deficiency was entirely due to a lack of human interaction. Furthermore, Itard believed that as the boy had survived alone in the woods for at least seven years, he was not without intelligence. Itard named the boy ‘Victor’ and devoted the next five years to an intensive educational programme in which Itard tried to get Victor interested in the social world, improve his awareness of stimuli, extend his experiences (for example, culture, games, groups of people), teach him to communicate using pictures and words and teach him to speak. After five years Victor could read and speak a few words, but Itard was disappointed in this lack of progress. However, the key idea from this story is that Itard *tried* to make things better for Victor. This work is often cited as the beginning of modern special education.

Within this positive historical line, it is also useful to acknowledge how intelligence tests played a positive role. Though intelligence tests and IQ scores were used, by some, to advance eugenic ideas, US intelligence expert Douglas K. Detterman suggests that the IQ testing before the Second World War did have a positive impact (Detterman, 1987; Detterman, Gabriel and Ruthsatz, 2001). Detterman shows that, before intelligence testing at the start of the twentieth century, those individuals who had learning disabilities were treated no differently from those who were mentally ill – assuming that people with learning disabilities

were simply uneducable, they were often institutionalised in mental asylums. Therefore, the introduction of intelligence testing, and the ability to identify those people who experienced learning disabilities, opened up new possibilities.

Detterman suggests that these possibilities came after the Second World War. After the war, the policies that had been born from eugenics fell into disrepute. Nazis involved in the Second World War and the Holocaust were tried at Nuremberg, revealing to the world the Nazis’ genocidal practices. Clearly, governments couldn’t condone those policies that had been advocated by Hitler, and many re-examined their eugenics-based policies. What then followed was a research agenda, particularly during the 1960s and 1970s, that sought to explore the nature of learning disabilities. Detterman *et al.* (2001) point to a body of research that looked at people with learning disabilities. Much of this research explored different aspects of memory, including short- and long-term aspects of rehearsal and their attention among individuals with learning difficulties. There was also research into autistic savants. Autism is characterised by extreme problems in communication and social interaction, displays of repetitive acts and excessive attachment to certain objects. Autistic savants are people who have autism; but they also have one extraordinary mental ability, more often in numerical calculation but sometimes also in music or art. Examples of extraordinary abilities among autistic savants include being able to remember extensive lists of facts or statistics, re-creating in detail a particular scene from a painting, or having exceptional musical ability but no musical education.

Detterman argues that all this research shows that people with learning disabilities are capable of learning and remembering complex materials and that those with learning disabilities have much more potential than previously thought. In the next section we are going to outline the work of one person who typifies the attempts to work with, rather than to exclude, those with learning disabilities. That person is Reuven Feuerstein.

### Feuerstein and Structural Cognitive Modifiability

Reuven Feuerstein is an Israeli educational cognitive psychologist. He began his work in the period from 1945 to 1948, when he was a special education teacher and counsellor in youth villages in Israel; there, he worked with young survivors of the Holocaust, who were severely traumatised. Among the children that Feuerstein worked with, one common factor was that before coming to Feuerstein’s attention, the children were thought to be

beyond psychological help of any kind. Over his career Feuerstein extended his work to other children with learning disabilities. The central idea in all of Feuerstein's work was that all children with learning disabilities – regardless of the nature, cause or severity of their disability – are capable of learning far more than is usually assumed. Over time, Feuerstein developed his theory and programme of Structural Cognitive Modifiability.

## Theory and programme of Structural Cognitive Modifiability

There are three assumptions underlying Feuerstein's theory and programme of Structural Cognitive Modifiability (Feuerstein, Falik, Rand and Feuerstein, 2002; Feuerstein, Falik, Rand and Rafi, 2003; Feuerstein, Rand and Hoffman, 1979). The assumptions of this model are as follows:

- People's abilities and behaviours are dynamic and modifiable, not static or fixed. That is, we are able to change or alter their skills.
- Individuals have to want, or need, to modify.
- Cognitive abilities, particularly intelligence, play a central role in the ability to modify one's self.

The theory and programme of Structural Cognitive Modifiability includes three major elements:

- Mediated Learning Experience (MLE).
- The Learning Propensity Assessment Device (LPAD).
- Instrumental Enrichment (IE).

## Mediated learning experiences

Feuerstein *et al.* (2002, 2003) describe **Mediated Learning Experience (MLE)**. For Feuerstein there are two types of learning: (1) direct learning and (2) mediated learning.

- **Direct learning** – This type of learning is a direct interaction between the learner and an environmental learning factor; for example, reading a book, using a computer or attending a lecture.
- **Mediated learning** – This is a different form of learning, where a mediator is placed in the middle of the learning process. Here, the mediator is able to interpret, change, emphasise and select the environmental learning factor to help the learner to learn. Therefore, using the direct learning examples, the mediator would help the learner with their reading when reading the book, they would work with them in using the computer or they would help them to understand the lecture.

Feuerstein focuses on using the second form of learning for individuals with learning disabilities (mediated learning experience). The mediator is there to help the learner interact more productively with the learning environment. At school you may have had classes where someone with a learning disability had a classroom assistant working directly with them while the class went on. This is an example of mediated learning.

For Feuerstein, mediated learning experience can be used for all people with learning disabilities. The dedicated and individualised attention from the mediator can be

## Profile



### Reuven Feuerstein

Professor Reuven Feuerstein was born in Israel. Between 1940 and 1944 Feuerstein attended Teachers College in Bucharest, Romania. From 1945 to 1948 he was a special education teacher and counsellor in youth villages in Israel, working with survivors of the Holocaust.

From 1950 to 1955 he studied in the University of Geneva, under Jean Piaget (a Swiss developmental psychologist, famous for his work with children and his theory of cognitive development). There, in 1952, he completed his degree in General and Clinical Psychology; in 1954, he gained his licence to practise in Psychology. In 1970 Feuerstein obtained his PhD in Developmental Psychology at the Sorbonne, a prestigious university in

Paris, France. From 1970 until the present day, Feuerstein has worked as a professor in the School of Education at Bar Ilan University, Israel. He is also currently the director of the Centre for Development of Human Potential in Jerusalem, Israel.

Feuerstein's research and work have included Holocaust survivors, Down's syndrome children, brain-injured individuals and children with autism among many others. He has received a number of honours and recognition, including the Canadian Variety Clubs International Humanitarian Award (1991) and the Distinguished Citizen of Jerusalem and Israel Prize in Education (1992). Feuerstein has published over 80 books, monographs, chapters and journal articles.

## Stop and think



### Encouraging emotional intelligence, creativity and wisdom

Look over some of the theories in this chapter, particularly the attributes listed in the discussion of emotional intelligence and Sternberg's descriptions of creativity and wisdom.

- What attributes described in these theories do you think you already have?
- What attributes described in these theories do you think you might do well to develop?
- How might you, yourself, go about developing the attributes you identified in the previous question?

used to improve the cognitive skills, particularly intelligence, of the learner, leading them to be an independent learner. Feuerstein says that the absence of a mediator leads to underdevelopment of the child's abilities.

### The Learning Propensity Assessment Device (LPAD)

The **Learning Propensity Assessment Device (LPAD)** is a type of intelligence test that adopts what Feuerstein terms an interactive or dynamic approach to assessing people's learning propensity – their natural potential or tendency for learning (Feuerstein, Falik and Feuerstein, 1998).

The LPAD uses a set of instruments that identify the cognitive functions, learning processes and problem-solving strategies used by the learner. At the first glance, the LPAD battery looks like any other intelligence test. It consists of 15 instruments aimed at assessing cognitive processes related to perception, attention, memory, problem solving and logical reasoning, including the Raven's Progressive Matrices and Standard Progressive Matrices (Raven, 1938, 1962, 2004).

However, Feuerstein argues that whereas traditional tests of ability, such as intelligence tests, seek to identify where a person is (for example, their IQ), the LPAD focuses on the person's potential for learning in the future. Unlike normal intelligence tests, which are administered over a relatively short period of time (1 or 2 hours), the LPAD is administered over a much longer period of time (over a number of sessions). The assessor uses the LPAD to investigate the learning-disabled person's cognitive skills, processes and learning strategies. However, rather than just seeing how well the person does on LPAD tasks, the test administrator looks for cognitive changes in the person while doing different tasks.

Overall, Feuerstein describes the LPAD as painting a picture, or creating a profile, of the person's learning potential. When the profile is created, this leads to the Instrumental Enrichment programme.

### Instrumental Enrichment

Instrumental Enrichment (IE) is a programme of cognitive learning that follows the Learning Propensity Assessment Device (LPAD) and is guided by mediated learning experiences (Feuerstein, Jackson and Lewis, 1998a). Feuerstein states that Instrumental Enrichment enhances the skills that are needed for independent thinking and learning by the individual. The programme seeks to enhance the cognitive and intelligence skills of that person by:

- addressing deficiencies in the individual's learning skills;
- teaching them new operations and techniques for learning;
- increasing their motivation;
- developing student learning strategies and approaches.

Each programme is tailored to the individual. Its implementation is directed by the mediator, who interprets, changes, emphasises and selects the environmental learning factors. The most important aspect of Instrumental Enrichment is the quality of the interaction between the learner and the mediator. Feuerstein estimates that an Instrumental Enrichment programme takes about 330 hours, comprising three 1-hour sessions a week, with a teaching time of over 18 months to 2 years.

Instrumental Enrichment has been used in over 60 countries through 2,000 projects. It is applied in several different ways, including programmes for special needs children, children with disabilities and programmes for the

rehabilitation of brain-injured individuals. There are also programmes for immigrant and cultural minority students, who may experience learning difficulties.

## Final comments

In this chapter we presented a general overview of how some common personality and intelligence ideas have informed our understanding of education and work. As a re-

sult, you should now understand the role and values of common personality and intelligence tests in predicting education and work achievement. However, it is also important to realise that personality and intelligence ideas in education and work extend beyond commonly known personality and intelligence measures. Therefore, we also described Kolb's theory, emotional intelligence, ideas around creativity and wisdom and work with people who have learning disabilities.

## Summary

- Commonly known measures of personality and intelligence have found to be good indicators of achievement in education and work. A series of findings suggest IQ predict performance at school and work. Of the five-factor model of personality, conscientiousness and neuroticism are consistently related to several indicators of job performance.
- Personality and intelligence fare relatively well against various predictors of job performance. However, there are two considerations: first, intelligence and personality variables don't provide very adaptable constructs within which to assess educational and work factors. Second, commonly known personality and intelligence variables aren't a first consideration in the minds of educators and employers, as there are many more important factors to be considered.
- In his experiential learning theory, which emphasises learning relating to, or derived from, experience, David Kolb (1981) suggests four main aspects in learning: concrete experience, reflective observation, abstract conceptualisation and active experimentation. Based on these four aspects of learning, Kolb identified four learning styles: diverging, assimilating, converging and accommodating.
- Emotional intelligence informs ideas of education as well as leadership in the workplace. Leadership is based on skills arising from self-awareness, self-regulation/management, social awareness and social skills/management and from distinctions between personal and social competencies and recognition and regulation. Education is based on Boyatzis' theory of self-directed learning.
- Research on creativity is best understood within the 4 p's: Person, Process, Press and Product.
- Sternberg considers two aspects of leadership: creativity and wisdom. Creative leadership can comprise various abilities including redefining problems, questioning and analysing assumptions, realising that creative ideas do not sell themselves and willingness to take sensible risks. Creativity can be grouped into types of creative leadership that (1) accept current paradigms (replication, redefinition and forward incrementation), (2) reject current paradigms (redirection, reconstruction/redirection and reinitiation) and (3) integrate current paradigms.
- Sternberg's balance theory of wisdom is the need to achieve a common good, whilst balancing several different factors: (1) intrapersonal, interpersonal and extrapersonal, (2) the short term and the long term and (3) adaptation, shaping and selection.
- Giftedness is commonly used in referring to individuals who are thought to possess great natural intelligence. Findings suggest that IQ tests might be a good indicator of giftedness. However, there are other conceptions of giftedness, including Renzulli's three-ring definition, Tannenbaum's psychosocial definition and Feldman's developmentalist view.
- There are two interpretations of the history of working with those who have learning disabilities. The darker history emphasises eugenics while the more positive history emphasises particular interventions with people who have learning disabilities. From the positive history, the theory and programme of Structural Cognitive Modifiability includes three major elements: Mediated Learning Experience, the Learning Propensity Assessment Device and Instrumental Enrichment.



## Connecting up

If you need more information on the theories of emotional intelligence, you can look back at the second part of Chapter 15 which is on the subject of emotional intelligence.



## Critical thinking

### Discussion questions

- In this chapter we looked at several ideas of leadership. What qualities do you think makes a good leader in these roles?
  - Politician
  - Managing director of a company
  - Teacher
  - Parent
- Do you think Kolb's theory of learning is a good explanation of how you learn? If not, why not?
- Think about situations when you are creative. How are these examples of creativity best understood within Runco's 4 'p's; Person, Process, Press and Product?
- Should gifted children be given as much support as children with learning disabilities?
- What is the best way of selecting the best people for jobs? Do personality and intelligence tests have a role in the selection process for jobs?

- Should we use personality and intelligence tests in education?

### Essay questions

- Critically discuss the view that commonly known measures of personality and intelligence are not useful to the world of education and work.
- Critically compare Kolb's and Boyatzis' theories of how we might best learn.
- Critically discuss the main psychological models of creativity.
- Critically examine the view that wisdom and creativity can be considered alongside more traditional conceptions of intelligence.
- Critically compare models of giftedness.
- Critically examine theories of how we can best understand and work with children who have special needs in education.



## Going further

### Books

- Arnold, J. M. *et al.* (2004). *Work psychology* (4th edn.). London: Pearson Education.
- Ormrod, J. (2005). *Educational psychology: Developing learners* (5th edn). London: Pearson Education.
- Subotnik, R. F. and Arnold, K. D. (1994). *Beyond Terman: Contemporary longitudinal studies of giftedness and talent* (Creativity Research Series). New York: Ablex.

### Journals

- Hough, L. M. and Oswald, F. L. (2000). Personnel selection: Looking toward the future – remembering the past. *Annual Review of Psychology*, 51, 631–664. In this article you will get an overall idea of the literature relating to personnel selection in work. *Annual Review of Psychology* is published by Annual Reviews, Palo Alto, California. Available online via Business Source Premier.



- Runco, M. A. (2004). Creativity. *Annual Review of Psychology*, 55, 657–687. Published by Annual Reviews, Palo Alto, California. Available online via Business Source Premier.
- Gersch, I. S. (2004). Educational psychology in an age of uncertainty. *The Psychologist*, 17, 142–145. In this article, Gersch looks at the factors that surround and are needed to inform present and future educational psychology practice. It is freely available online. You can find *The Psychologist* on the British Psychological Society Website (<http://www.bps.org.uk/>).
- Walsh, S. (1999). Shame in the workplace. *The Psychologist*, 12, 20–23. Sue Walsh presents the case that linking psychodynamic and organisational perspectives can offer new insights into emotional experiences at work. It is freely available online at the British Psychological Society Website (<http://www.bps.org.uk/>).
- Sternberg, R. J. (2005). WICS: A model of positive educational leadership comprising wisdom, intelligence, and creativity synthesized. *Educational Psychology Review*, 17, 191–262. *Educational Psychology Review* is published by Kluwer Academic Publishers. Available online via Kluwer and Swets Wise.

Articles on personality and intelligence in education and work discussed in this chapter are often found in the following journals. Use ‘personality’, ‘intelligence’, ‘emotional intelligence’, ‘special needs’, ‘learning difficulties’, ‘educational achievement’ and ‘work performance’ as your search terms on library databases such as Web of Science and PsycINFO.

- **British Journal of Occupational and Organization Psychology.** Published by the British Psychological Society. Available online via IngentaConnect and Swetswise.

- **British Journal of Educational Psychology.** Published by the British Psychological Society. Available online via IngentaConnect and SwetsWise.
- **British Journal of Developmental Psychology.** Published by the British Psychological Society. Available online via IngentaConnect and SwetsWise.
- **Intelligence: A multidisciplinary journal.** Published by Elsevier Science. Available online via Science Direct.
- **Personality and Individual Differences.** Published by Elsevier Science. Available online via Science Direct.

## Web links

- There are industrial-organisational psychology links (<http://www.socialpsychology.org/io.htm>) at the Social Psychology Network (<http://www.socialpsychology.org>).
- The International Center for the Enhancement of Learning Potential is at <http://www.icelp.org/asp/main.asp>. This site outlines a lot more about the work of Professor Reuven Feuerstein and his theory and programme of Structural Cognitive Modifiability.
- If you want to read more about some of the initiatives being undertaken within the European Union, then go to the link [http://europa.eu.int/index\\_en.htm](http://europa.eu.int/index_en.htm). Two areas that might interest you are ‘Education, Training, Youth’ and ‘Employment and Social Affairs’. If you want to see what is being done today by the UK government’s Department for Education and Skills resource to support the education profession, this is at <http://www.teachernet.gov.uk/wholeschool/sen/>.



## Film and literature

- In this chapter we covered the theory of individual wisdom. *The Wisdom of Crowds* (2005, James Surowiecki) is a book that challenges the notion of why the conventional wisdom of the individual expert is sometimes inferior to that of group wisdom. Don’t treat this as an academic book for your work; you might have some fun reading this analysis of how wisdom arises, and doesn’t arise, from group thinking together.
- In this chapter we spoke about working with people who have special needs, both in terms of giftedness and learning difficulties. The following two films deal with the issues surrounding special needs. **Little Man Tate** (1991, directed by Jodie Foster) is a film about Dede, a lone parent who’s trying to bring up her son Fred. When she discovers that Fred is a genius, Dede is determined to ensure that he has all the opportunities he needs and that he is not taken advantage of by people who forget that his extremely powerful intellect is harboured in the body and emotions of a child. **I am Sam** (2001, directed by Jessie Nelson) is a story of a man with learning disabilities who fights for custody of his 7-year-old daughter.
- **The Usual Suspects** (1995, directed by Bryan Singer) explores some of the themes outlined in this chapter, though we won’t say exactly what themes, because it will give the ending away.

- **Miss Potter** (2006, directed by Chris Noonan). This is a film about the creativity of English author Beatrix Potter who was able to combine scientific intellect and observation (she was a mycologist, which is a branch of biology) with an ability to write and draw best-selling children's books.



Explore the website accompanying this text at [www.pearsoned.co.uk/maltby](http://www.pearsoned.co.uk/maltby) for further resources to help you with your studies. These include multiple-choice questions, essay questions, weblinks and ideas for advanced reading.