

Chapter 6

Individual Differences

Patrick A. Tyler

Everybody is unique. There is nobody else in the world who is quite like you or me. We differ for biological reasons: our own particular arrangement of the DNA on our chromosomes is unique, so any characteristic which is even slightly influenced by our genes will contribute to our uniqueness. We also differ for environmental reasons: no two people can occupy the same environment at the same time throughout their lives. So any characteristic which is influenced by environment, experience and interaction with other people will contribute to our uniqueness.

The study of consistent individual differences in behaviour defines the psychology of personality. It should be noted that this textbook definition conflicts with the popular lay view of personality which corresponds to something like charisma and individual character: 'Betty has a wonderful personality'. By contrast and more prosaically, the personality psychologist might give Betty a personality test and conclude that she rates rather high on sociability, neuroticism and agreeableness, but low on conscientiousness and intellectual interests. She might be better advised to apply for jobs as a receptionist or a salesperson than as a librarian or police officer.

Theories of personality and individual differences

Historically the study of individual differences in behaviour has given rise to many different theories about their origins. Hall and Lindzey (1957), who wrote the leading textbook of theories of personality, discussed in detail about 20 different theories, a far from comprehensive selection. The reasons for such prolific theorizing on this subject seem to be twofold: (1) we all have our own views on human nature and human behaviour and this is indeed one of the ways in which we differ from everyone else; (2) the nature of the subject makes it difficult to generate and test hypotheses about personality differences, and therefore it is difficult to refute other people's theories and confirm our own.

Despite the profusion of theories about individual differences, it is sensible to identify four major themes or approaches underlying them. Psychoanalytic theories, following the teachings of Freud and his associates, emphasize the important role of unconscious processes and early traumatic experiences in the formation of personality. By contrast humanistic and cognitive theories propose that it is the operation of conscious processes and the striving for self-fulfilment which guides and gives consistency to our lives. Social learning theories mainly underline the role played by the environment, especially the

social environment and social experience, in the development of our individuality. Finally, though historically first, the type and trait theories, while accepting the role played by all of these factors, emphasize the importance of understanding the particular combination of characteristics for the prediction of a person's success in life. An example of the trait approach can be seen in the description given above of Betty's personality and the use to which a personality psychologist might put such a description.

Psychoanalytic approaches

At the end of the nineteenth century, the first practitioners of the newly emerging discipline of psychology were dominated by the traditions of British philosophy and German physical science. The complexity of the human mind was thought to be decomposable (like white light and complex sounds) into simple components, and the method by which this analysis could be achieved was called introspection. A highly trained observer in the laboratories of Wilhelm Wundt in Leipzig, Germany or E.B. Titchener at Cornell University in the USA would look into his own mind and analyse the flow of thoughts, memories and feelings like a physical scientist objectively analysing a chemical compound. The assumption was that human beings are rational creatures, whose motivations, thoughts and emotions are available to consciousness, and that introspection is a viable method of gaining access to them.

One of the lasting contributions of Charles Darwin to psychology was to erode the distinction between instinctive animals and rational human beings. The theory of evolution, described first in the *Origin of Species* (1859), and especially its application to human evolution in the *Descent of Man* (1871), started his followers looking for evidence of rational behaviour in animals and instinctive motivations in people. The first of these two lines of enquiry led to the study of animal intelligence (for example by Thorndike, 1899) and subsequently to the explosion of laboratory studies of learning in animals in the middle of the twentieth century. The second consequence of Darwin's revolution was to implant the concept of 'instinct' in those who were searching for the basis of consistency in human personality. Almost immediately, a host of new instincts were suggested, to 'explain' every sort of behaviour. The observation that some children like to climb trees could be explained by a treeclimbing instinct; enjoyment of sports by a game-playing instinct. Any new behaviour could be covered by naming a new instinct. By the 1920s nearly a thousand instincts had been proposed. Obviously these instincts were merely being used as labels, and had no explanatory value at all.

At that time, Sigmund Freud was developing a theory of personality which many considered more promising. The essence of his early theory was that everyone has a reservoir of instinctual energy, the libido, which generates fantasies, wishes and desires. In principle, the expression of these desires is harmful because of the social sanctions which they would incur, so they are held in check by that part of the mind which has learned to stay in contact with reality. There is also part of us which feels guilty if we do something which would not be permitted by society. These three parts of the mind have been labelled the id (the part which always seeks immediate pleasure), the ego (the part which stays in contact -with reality) and the superego (the conscience).

Because our unconscious desires and impulses constantly push for expression and gratification without considering the consequences, we become anxious when they come

into conflict with our concept of reality and our moral conscience. We therefore develop characteristic ways of protecting ourselves against this anxiety. The most important way of protecting ourselves is to block or repress any deep-seated memory which might hurt us if it came to the surface. A cue which might be expected to elicit the memory through association may be ignored or may produce obviously inappropriate responses. For example, if you have had strained relationships with your mother which you are repressing, you may react in an inappropriate way when you meet the mother of your friend, ignoring her, or treating her as if she is someone else. Repression is one of several ego defence mechanisms; another is regression, or the tendency to revert to a way of acting which is characteristic of an earlier stage of development (such as crying to get your way when frustrated).

Freud and most of his followers were mainly concerned with understanding and treating the psychological problems of their patients in the clinic. Understandably, then, much of his theorizing focuses on neurotic symptoms and their origins and removal. There is one controversial part of his theory, however, which does make an attempt to explain individual differences in normal personality. This is the theory that every child has to pass through three major stages during early childhood. The first is the oral stage when the focus of sexual stimulation for the infant is the mother's breast and the pleasure obtained from sucking. The second is the anal stage when pleasure is obtained from control over retaining or expelling the bowel movements. Finally in the phallic stage erotic pleasure is obtained from stimulating and manipulating the genital region. In the phallic stage the little boy notices that he has a penis like his father and vies with his father for the love of his mother. Fearing that his love will end with his powerful rival removing his penis, which would make him just like his sisters who presumably lost theirs in this way, he diverts his energy into admiration for and identification with his powerful father and so resolves his conflict. This is the oedipal conflict and its desired resolution. Little girls go through a similar cycle of loving the father, mourning their lost penis, and ending up with identification with mother, known as the electra complex. People's personalities differ because we each may be frustrated at a different stage of development and become fixated at that stage; later in life in anxiety-evoking situations we regress to that stage and develop an appropriate set of character traits. Oral character traits include dependency, pessimism and passivity; anal characteristics are orderliness, stinginess and stubbornness; and phallic traits include vanity in males and ambitiousness in females.

Freud's great contributions to psychology were the emphasis on unconscious motivation and the importance of inner conflicts in the generation of anxiety and psychological problem behaviour, the emphasis on sexuality and his recognition of the importance of early traumatic experiences in the development of personality. However, his theory is heavily criticized by psychologists (following the philosopher, Karl Popper, 1963) for being too all-encompassing and virtually untestable; it is therefore unscientific. Psychoanalysis is often thought of as more like a religion or belief system that does not need verification if you are a believer. Freud's theory has come under increasingly vigorous attack from psychologists and philosophers of science in recent years. Two of the strongest critics are Jeffery Masson (1985) and A.Grünbaum (1984). Masson in particular started an interesting and current debate about the reality of childhood sexual abuse, arguing that Freud wrongly changed his views from an early belief that neurotic

adults remembered real events to the later theory that such repressed memories represented childhood fantasies and desires. Current research on this subject has important legal consequences (Loftus, 1993).

Despite the scepticism of many academic psychologists, Freud's theory has continued to stimulate research on individual differences. Much of the recent research has focused on the defence mechanism of repression. For example, since the late 1960s Lloyd Silverman and his associates (Weinberger and Silverman, 1987) have carried out a long series of experimental studies, using a procedure which they call *subliminal psychodynamic activation (spa)*. Images designed to activate unconscious thoughts or wishes are presented to volunteers for a fraction of a second on a blank screen. The volunteers are unable to report what they saw, but they are found to behave in accordance with predictions from Freud's theory. For example, depressed people, who are thought to be turning their unconscious oral aggressive impulses inwards, became more depressed when presented with aggressive images (a stylized picture of a cannibal); stutterers, who are proposed to suffer from anal conflicts, were presented with an image of a dog defaecating which increased their stuttering; schizophrenics shown an image of a charging lion with bared teeth increased their pathological symptoms. Male homosexuals, proposed to have oedipal conflicts, were presented with a picture of an older woman embracing a younger man, superimposed with the words 'fuck mommy', and rated pictures of male nudes as more attractive than before the presentation. While these images exacerbated symptoms, many other studies suggested that 'subliminal' presentation of the comforting words 'Mommy and I are one' tended to relieve schizophrenic symptoms, decreased phobic behaviours, facilitated behaviour therapies and increased adherence to a diet.

Taken at face value, Silverman's studies provide convincing experimental evidence for Freud's theory, but there have been severe criticisms of his methodology (e.g. Balay and Shevrin, 1988; Brody, 1988). Perhaps the most serious problem is that other investigators using the same techniques as Silverman have frequently been unable to find the same results. Other criticisms include the dubious use of statistics, selective citing of supportive results while non-supportive ones are ignored and occasionally changing the theory to fit the data. The whole concept of subliminal presentation, which implies an oldfashioned notion of a sensory threshold, is also under severe attack in psychology. That people, especially emotionally disturbed people, are unwilling to report seeing an emotion-evoking stimulus, does not necessarily mean that they are not conscious of it. There is also doubt as to whether these studies are a true test of Freud's theory, since they do not attempt to elicit the inner conflicts suffered by each individual.

Another line of research on individual differences in personality which shows a distinct influence of psychoanalytic ideas started with the work of Byrne (1961). Some people are found to deal with anxiety-arousing situations or stimuli by avoiding information about them, while other people positively seek out such information. Byrne labelled the two extremes *repressors* and *sensitizers* and devised a questionnaire to measure individual differences along this dimension. Subsequent research has shown that while sensitizers attend more to their own negative qualities and report more distress in stressful situations, they do better if they are given preparatory information (Cook, 1985). Repressors seem to be people who are especially sensitive to criticism and threat and deal with it by ignoring it if they can do so, but if forced to do so they will attend to and worry

about the situation (Baumeister and Cairns, 1992). The difference, then, is not thought to be one of distorted memory (as Freud might have suggested) but of the way we attend to events, so this research too fails to add support to Freud's theory.

Types and traits

People have been classifying each other into personality types, probably since we began to speak. For example, in 319 BC Theophrastus, a student of the great Greek philosopher-scientist Aristotle, proposed 30 personality types including the Miser, who only paid attention to profit and loss, the Boor, who displayed his ignorance in a loud voice, and the Gossip, who revelled in fictitious sayings for pleasure. Theophrastus was moved to wonder how such different types could emerge in the rather homogeneous environment of the Greek state. More recently, psychologists have attempted more limited classification into small numbers of personality types. For example, in an attempt to explain the horrors of the Nazi period and the persecution of Jews and other despised people by the Third Reich, an Authoritarian personality type was described in detail and said to apply to many in power at the time (Adorno *et al.*, 1950). The authoritarian person is characteristically sycophantic to superiors, ruthless to inferiors and very rule bound: you may recognize the type. Another personality type, known as *Type A*, was developed to describe the sort of person who is prone to high blood pressure and heart disease (Friedman and Rosenman, 1974): such people are characteristically hard-driving, ambitious and assertive.

Except for these few quite limited examples, classifying people into simple personality types has generally not been a fruitful approach to understanding personality differences in psychology. Rather, most effort has gone into finding a number of basic *dimensions* of personality along which everyone can be placed. In this endeavour, personality theorists have been attempting to emulate the early successes achieved in the field of intelligence. In the early part of this century, Alfred Binet in France laid an important trail for others to follow when he developed an intelligence test for children. Later the American psychologists Terman in 1916 and Wechsler from 1938 (see Aiken, 1985) developed mental tests which could be used to measure people's mental ability on a single IQ scale, so that they could be compared on one dimension in the same way that we can compare their height in centimetres or their weight in grams. As well as furnishing an established and successful pattern for the dimensional approach, intelligence testing also provided a tentative theoretical rationale. Charles Spearman, the English statistician-psychologist, found that some people tend to do well at any sort of ability test, whether it deals with verbal, numerical or mechanical abilities, while others do badly. He therefore suggested that there is an underlying general ability (which he labelled G) with a number of different special abilities (Spearman, 1904). A person with a fairly high G might still have quite low special numerical skills and therefore perform poorly on various mathematics tests. By contrast, Thurstone (1938) believed that there were a small number (about nine) primary mental abilities, but no broad general ability.

The statistical technique developed by Spearman and Thurstone to study intellectual abilities is known as factor analysis. The tendency for some people to do well on two tests and for others to do poorly on both is indexed by a measure of association known as the correlation coefficient. Correlation coefficients can vary between +1, indicating a

perfect positive association, and -1 , indicating a perfect negative association, with 0 indicating no association. If you and your classmates are given three tests of verbal abilities (say vocabulary tests) in consecutive weeks, some people will tend to come out consistently on top, and some people consistently at the bottom each time; that is to say the tests are likely to have high positive correlations among them, e.g. about $+0.7$; the same is true if three tests of numerical ability are given—again the correlations will be about $+0.7$. However, different people do well (or poorly) on the maths tests from those who do well on the vocabulary tests. The correlation between verbal and numerical tests may be about $+0.2$ on average: the correlation is low but positive, because some people are quite good at any kind of test, while others are not. If you look at the set of correlation coefficients among all possible pairs of the six tests, you will see a pattern, with high positive correlations among the purely verbal tests, high positive correlations among the purely numerical tests, and low positive correlations between the two types of tests. Using the technique of factor analysis in the way Spearman did, we would find three factors: a general factor which could account for the positive correlations among all the tests, a verbal factor which accounts for the higher correlations among the verbal tests, and a numerical factor which accounts for the higher correlations among the numerical tests. Thurstone's method would give two primary factors (verbal and numerical), which have a low, positive correlation among themselves. For further discussion of the development of intelligence tests and the current state of work on the measurement of intelligence the interested reader is referred to Kline (1991).

The success of intelligence testing was soon applied to the study of individual differences in personality too, and the first modern personality tests were developed during and soon after the First World War. The first personality questionnaire was Woodworth's Personality Data Sheet, which was based on questions a psychiatrist might ask in an interview to assess whether potential soldiers have personality problems which might interfere with their efficient functioning. Many more questionnaires have been developed subsequently; all such questionnaires have in common that they ask you to respond on an answer sheet to a number of personal questions about yourself: your honesty, friendliness, anxiety, hostility, impulsiveness, etc. are probed in detail. Examples of items on a personality questionnaire might be 'I prefer quiet inactive pastimes to more active ones' or 'I tend to be somewhat emotional' with five permissible responses ranging from 'Hardly at all' to 'A lot' (Willerman, 1975). As with mental abilities, the associations among all these characteristics can be investigated using the statistical correlation techniques described previously. It has been of enormous interest to psychologists in this field to know how many 'primary' personality characteristics there are, and these psychologists have disagreed dramatically over the proposed number.

Two personality psychologists working at about the same time, and using rather similar techniques, were Raymond B. Cattell in the USA and Hans J. Eysenck in the UK. Both were trained in the factor-analytic traditions of Spearman and Thurstone before the Second World War, and both developed their own approaches to the analysis of personality immediately after the war. Eysenck has preferred to adopt an analytic technique similar to Spearman's, one which produces a very small number of uncorrelated major dimensions which are thought to account for much of the consistency in our behaviour. Most of Eysenck's early theorizing focused on the dimensions of extraversion-introversion and neuroticism-emotional stability. Many of the early

personality theorists, including those in the psychoanalytic tradition, had emphasized the importance of one or both of these dimensions. For example, it was the psychoanalyst Carl Jung who introduced the dichotomous labelling of people as extraverts and introverts, and it was the early psychiatrists who introduced the concept of neurosis to describe people who suffer from a level of anxiety which produces disabling symptoms. In the late 1960s Eysenck added a third major dimension, known as psychoticism, to his scheme (Eysenck and Eysenck, 1976). The Eysenck Personality Questionnaire (EPQ) has been developed to measure his three dimensions, and is in very wide use today.

When Eysenck started his studies of personality, he already had a theoretical orientation and a historical perspective. His first studies were of neurotic soldiers in the psychological clinic, and his measures were behavioural observations and clinical case notes on these patients (Eysenck, 1944). It was no surprise that the first general dimension to emerge was neuroticism, nor, given his orientation, that this was closely followed by extraversion-introversion. By contrast, Cattell's approach was much more eclectic. His first studies were of small groups of college students who knew each other well, and who were asked to rate each other using descriptive words culled from the English dictionary and carefully chosen to be as comprehensive as possible (Cattell, 1946). Cattell rejected the simplicity of Eysenck's broad general dimensions, claiming that they lose too much detail, and preferred the descriptive utility of a larger number of smaller-scale traits. Some people love to organize activities for the group, some like to dominate a conversation, some are impulsive and uninhibited in their behaviour; they would all be rated as extraverts on Eysenck's dimensions, but this general description does not indicate the form of the extraverted behaviour they each display. Cattell would feel that for the description to be useful there should be three dimensions, with a low positive correlation between them. Such an approach resulted in about 12 to 20 traits being elicited in each of Cattell's studies. Cattell, like Eysenck, has produced a widely used personality questionnaire which is designed to measure 16 Personality Factors and is therefore known as the 16 PF.

Cattell and Eysenck may be seen to have disagreed more strongly over the level of generality which is most useful for personality description than over the actual number of personality dimensions that exist. Eysenck's theory has always proposed that there are a number of lower level traits (e.g. sociability, dominance, assertiveness, activity and liveliness) included within each of his dimensions (which he has often confusingly referred to as 'types'). With the exception of sociability and impulsivity, subsumed within extraversion in the early theory, he has not been especially interested in describing these traits. Cattell, moreover, believed that there were four higher level dimensions (extraversion-introversion, anxiety, toughness-sensitivity and dependence-independence) which could be derived by factor analysis from his 16 traits and that Eysenck was using these 'second-order' factors which were too general to be of much interest. Recent research, which uses the 'space-age' technology of the desktop computer and statistical software and therefore has an advantage over the early work of these two forerunners of psychometrics, calls into question the conclusions of both men. Cattell's 16 factors have proved impossible to replicate, even when his own questionnaire is administered, and they seem to have emerged from the crude techniques which he was forced to employ (Kline, 1993). The 16 PF questionnaire is widely used, especially by occupational psychologists for advising employers on the suitability of job applicants and promotion

prospects, a crucial decision for an individual's career. Yet the test is known to be an unreliable instrument, as it is normally used, so how can its popularity be justified? There are three possible reasons for the apparent contradiction: (1) there is enough validity imparted by the higher order factors, which are reliable, to make the 16 primary factors usable; (2) there is rarely any evaluation of the success of psychometric measures used in job selection, so that even the highly unscientific method of handwriting analysis has achieved some popularity; (3) personality characteristics have little to do with success in most jobs, so it makes little difference what personality test is used (see Kline, 1993). There are probably elements of truth in the first two of these suggestions, but the last one is an extreme point of view.

By contrast, Eysenck's three dimensions are found to be very reliable and are found in recent studies to emerge from factor analysis of different personality questionnaires (Kline, 1993). However, they are argued to be insufficient to provide a full account of the structure of personality. Most modern trait theorists, such as McRae and Costa (1990), have come to the conclusion that there are five major dimensions underlying human personality. The work which led to this conclusion was performed initially by Norman (1963), using Cattell's rating scales, but methods of analysis similar to Eysenck's. The five major dimensions he found were labelled Extraversion, Agreeableness, Conscientiousness, Neuroticism and Culture. A number of more recent studies using a variety of different techniques and different subject populations have repeatedly revealed essentially the same set of five traits. The most vigorous proponents of this five-factor view of personality have been McRae and Costa (1990), John (1990) and Goldberg (1990), who called them the 'Big Five' personality dimensions. Costa and McRae (1985) have developed a personality questionnaire named the NEO-PI in which Norman's Culture factor is renamed Openness to Experience (NEO-PI stands for Neuroticism, Extraversion, Openness Personality Inventory). This questionnaire contains six narrow trait scales for each of the five broad dimensions. Table 6.1 shows for each dimension a list of adjectives which would describe a person who was high on that dimension, and the names of the NEO-PI scales which contribute to each dimension. In addition, because there is not complete agreement about the naming of the dimensions themselves, some of the alternative names for each dimension are shown.

What this research shows is that when we describe our own or other people's personality we tend to use a selection of words in the English language which have similar meanings. For example we might describe a friend as nice or pleasant or helpful or easygoing, etc. Someone we do not get on with we may describe as nasty, mean, hostile, etc. These are all terms which lie on the same personality dimension of agreeableness (though at opposite ends of it). Norman found quite early in his research that not only can we rate ourselves and people we know well along the five dimensions, but we can also rate the people we do not know at all, and the same dimensions appear in the descriptions we use. So perhaps the dimensions were more a characteristic of the language we use than of our personality; we all have simple stereotypes of the people we encounter and these are constrained by the language we have available to describe them. So is it possible that the five personality dimensions are really five dimensions of the meaning of words in the English language? It now seems that there is not a clear-cut answer to this question: the main

Table 6.1 *Examples of adjectives and questionnaire scales defining the five factors (after McRae & John, 1992)*

Factor	Also known as	Adjective	Scale
Extraversion (E)	I	Active	Warmth
		Social adaptability	Gregariousness
		Surgency	Assertiveness
		Assertiveness	Activity
		Sociability	Excitement seeking
		Talkative	Positive emotions
Agreeableness (A)	II	Appreciative	Trust
		Conformity	Straightforwardness
		Likeability	Altruism
		Friendly compliance	Compliance
		Sympathetic	Modesty
		Trusting	Tender-mindedness
Conscientiousness (C)	III	Efficient	Competence
		Will to achieve	Order
		Responsibility	Dutifulness
		Reliable	Achievement striving
		Responsible	Self-discipline
		Thorough	Deliberation
Neuroticism (N)	IV	Anxious	Anxiety
		Emotionality	Hostility
		Emotional control	Depression
		Touchy	Self-consciousness
		Unstable	Impulsiveness
		Worrying	Vulnerability
Openness (O)	V	Artistic	Fantasy
		Inquiring intellect	Aesthetics
		Culture	Feelings
		Intelligence	Actions
		Intellect	Ideas
		Wide interests	Values

evidence that the five dimensions are ‘real’, rather than an artefact of our language, is that almost identical dimensions are found in people of other cultures, including Dutch, German and Japanese (McRae & John, 1992). In the Chinese, five similar dimensions are also found but they do not map exactly onto those found in Europeans, which gives some evidence of language or culture dependence. The cross-cultural and cross-linguistic equivalence of the five traits does suggest that there is something universally and characteristically human about them. Currently research on the ‘big 5’ personality dimensions is very active as investigators attempt to extend their applicability to different personality-measuring scales in a variety of populations (McRae & John, 1992).

Social learning approach

During the first half of this century, while the psychoanalysis and trait approaches to personality were being developed, experimental psychology as an academic discipline had progressed rapidly with very different emphases. It seemed logical to early theorists in the psychoanalytic and trait traditions that behavioural consistency should arise largely from factors within ourselves, and that when we respond to external events or cues, we do so in a characteristic and fairly predictable way. By contrast experimental psychologists were emphasizing the way in which behaviours are under the control of environmental stimuli, for example through the process of classical conditioning (see previous chapter). Many experiments showed that rats and pigeons learn to respond appropriately when a cue (light or tone) reliably predicts a food reward. In the late 1930s a group of experimental psychologists at Yale University, under the aegis of the influential learning theorist Clark Hull, developed the first social learning theory of personality. In their subsequent book *Social Learning and Imitation*, Miller & Dollard (1941) proposed that the main external stimuli influencing human behaviour are social rewards such as approval by friends and relatives and social cues. Imitation of the behaviour of others is the most important learned response to social cues and it provides the main mechanism by which we acquire our uniqueness. Characteristic individual differences in patterns of responding were said to come about through the history of social rewards encountered by the individual.

Experimental psychologists have not in general been very interested in explaining individual differences in personality and behaviour. In the late 1920s another group of psychologists at Yale University, under Hartshorne and May (1928), had carried out a vast array of behavioural tests on a large number of young schoolchildren. In all some 17000 schoolchildren were tested using several hundred different sorts of tests of honesty and altruism in a massive Character Education Enquiry published in three volumes from 1928 to 1930. In general these investigators found that even tests of purportedly similar characteristics, such as tests of honesty or tests of altruism, had very low correlations among themselves. This was taken as meaning that there was not a consistently honest or dishonest character trait in children. Other experimental psychologists subsequently confirmed that one behavioural measure of a trait such as sociability, or self-restraint, is not a good predictor of another behavioural measure of the same trait (e.g. Epstein, 1983). In 1968 Walter Mischel reviewed a number of findings of this sort in his book *Personality and Assessment* before arriving at the conclusion that there is no individual consistency in behaviour.

The publication of *Personality and Assessment* had a lasting and numbing effect on the study of individual differences in personality during the subsequent decade. While theorists such as Block and Epstein disputed both the facts and methodology which led Mischel to his negative conclusion, young psychologists were no longer recruited to this area, major books were not published, and university departments stopped teaching courses on individual differences. In the end, after a long and fascinating debate in the psychological journals, a generally accepted compromise has been reached. It is generally agreed that, as Mischel insisted, it is difficult to predict individual acts of behaviour either from other behaviours or from personality questionnaires. However, this is mainly because single behavioural acts are very unreliable reflectors of stable personality traits. If I place you in a room containing strangers, I cannot predict reliably whether you will

approach and integrate with these people just by knowing how sociably you are rated by yourself or others. However, if we aggregate behaviours over a number of different times and situations, the average amount of social interaction will correspond quite well to the ratings. Individual acts of behaviour are too closely controlled by immediate situational cues to be predicted accurately: apparently trivial things such as the size of the room, the seating arrangements, the age and gender of the participants may be more important than your overall sociability rating. It would appear that stable and consistent individual differences in personality are a guide, a personal philosophy or a broad strategy which we use to help us cope with specific situations. They are not a prescription or blueprint telling us exactly what to do.

Cognitive-behavioural approaches

The concept of a personal philosophy or broad strategy guiding behaviour has been adopted from cognitive psychology, the fourth of our themes underlying theories of individual differences. Early cognitive theorists such as Kurt Lewin, George Kelly and the Gestalt psychologists, like the learning theorists, did not place much emphasis on explaining individual differences in behaviour. They did, however, introduce a number of important concepts taken up by more recent theories. One was the notion that the internal factors central to psychodynamic and trait theories and the external factors emphasized by the social learning theories were equally important; these interact with each other and with the behaviour itself in the determination of our actions. A second concept is the idea that our actions are largely governed by certain thought processes which interpret information coming from both internal (fear, excitement etc.) and external sources. A third idea common to many of the cognitive theories is that of plans, intentions and goals. We all set ourselves goals—either small immediate goals like going shopping for the next meal, or large goals like getting a degree or getting married. We make plans to achieve these goals and it is the achievement of these plans that motivates most of our behaviour.

Another idea which has been largely reintroduced to psychology recently is the self-concept. The clinical psychologist Carl Rogers has been particularly influential in this area. The way we see ourselves and the way we think other people see us acts as a sort of selective filter through which we process all our incoming information. Rogers and others have made a distinction between the actual self (how we think we are) and the ideal self (how we would like to be). There is always a discrepancy between the two, which in turn sets goals and motivates plans for self-improvement. The self-concept has been adopted and forms a central part of the social cognitive theories of Walter Mischel and Albert Bandura. Mischel (1990) has mainly emphasized the dimension of self-control, especially the rules and strategies children use to delay the pleasure of a desired object like a toy. Bandura (1986) has placed a lot of attention on the development of competencies and abilities to cope with particular problems and situations. The way we judge our self-efficacy in a situation will influence what we do, how much effort we expend, whether we persist in a task, how frustrated, angry or upset we get and our future beliefs about our competence in similar situations.

The computer modelling approach, which is the focus of much recent experimental psychology, has also made an impact on the area of individual differences in personality. Central to this approach is the idea that we form mental representations or images, often

known as schemas, which help us interpret and organize information and behaviour. Schemas help us make sense of our experiences, especially when there is insufficient information available. For example we may form schemas of categories of individuals (as teachers, students, car drivers, parents, etc.) which are quite adaptive in that they help us behave appropriately because we know what to expect in any situation. Some theorists believe there are hierarchies of schemas of increasing generality: for example, the schema 'school teacher' encompasses lower level schemas such as secondary school English teacher and is encompassed by higher level schemas such as 'educator'. In general, middle-level schemas are thought to be most useful. The largest and most complex schemas are self-schemas. Markus (1977) has shown that people with a particular self-schema, such as 'I am an independent person', process supporting information quickly, resist information which contradicts the self-schema and remember relevant events and actions. Research on the self-concept, primarily from a cognitive-behavioural standpoint, is currently one of the most productive and interesting areas of investigation into personality and individual differences.

Research on personality and Individual differences

Recent research on individual differences in personality and behaviour has been influenced by the four approaches described, but is much more orientated towards the solution of particular problems than towards theory testing. As a result it is beginning to demonstrate the ways in which different theoretical approaches may be integrated in the explanation of psychological phenomena. Two of the most active areas of research which have contributed to our understanding of this topic are behavioural genetic studies and studies on stress and coping strategies.

Research on the genetics of behaviour

An understanding of the genetic basis of behavioural differences is fundamental to any explanation of individual differences. Research in this area is now converging on a number of conclusions which have quite profound consequences for theories of individual differences. The main methods used by behaviour geneticists are the comparison of different sorts of twins, monozygotic (one-egg or identical) and dizygotic (two-egg or fraternal), and the natural experiment that is available when children are adopted. Very large numbers of twins and adopted children have now been subjected to measures of personality and abilities with interesting conclusions. First, the contribution of genetic factors to individual differences in personality and abilities is substantial. For global characteristics like extraversion and IQ, about 40 per cent of the differences between individuals is attributable to differences in the genes. Today the statistical techniques available for estimating the relative importance of genetic factors are very sophisticated and accurate. There are, however, a number of surprises in the data. The first is that the estimates of the relative importance of genes in various traits, such as extraversion and neuroticism, are similar for most traits measured. There are minor differences, of course, but the similarity of the correlation coefficients is quite striking. Second, it is found that members of the same family are alike for genetic reasons alone;

there is no similarity among their personalities for non-genetic reasons such as interaction with parents, living in the same house, going to the same school. Third, odd results are sometimes found with identical twins who often resemble each other more than they should as predicted from their genetic relationship.

These recent findings (Plomin *et al.*, 1990) seem first of all to provide very strong support for a trait approach to personality. Clearly individual differences do exist in various personality traits, and these differences do have a biological basis. It is slightly disturbing perhaps that the strength of the genetic contribution does not seem to depend on whether the trait is one of the basic five robust traits or almost any other that can be measured reliably. The indiscriminating and unselective nature of the genetic contribution seems to suggest that biologically there is a smaller number of more primitive dimensions underlying the various personality dimensions, and that these then become differentiated and more distinguishable during development. There is in fact evidence that from the very earliest days of life infants differ in temperament on two dimensions. Some children are always more active than others, and some are temperamentally more unstable than others (Buss and Plomin, 1975, 1984). While these temperamental differences resemble later differences in extraversion and neuroticism, it seems possible that the dimensions of agreeableness and conscientiousness and all the minor personality characteristics are derived during development from the primitive temperaments. There is possibly also an even more basic temperamental difference of positive and negative affect (ranging from babies who are always happy and content to those who are often miserable). If there are just one or two original dimensions of infant temperament, which are strongly influenced by the genes and which then differentiate into the major personality dimensions, some of the puzzles described in the last paragraph would be resolved.

While genetic influences on personality are important, it should not be forgotten that environmental ones are even more important (they account for about 60 per cent of individual differences in personality). It is therefore astonishing that virtually all of this environmental contribution is found to be caused by factors which are not shared by other members of a family (Plomin and Daniels, 1987). This finding rules out the possibility that parental treatment, school, the type of neighbourhood, social or physical deprivation, family income, the number of books or bathrooms in the home have any influence on personality development. Perhaps this should not be surprising; after all, the same full range of personality characteristics is found in poor neighbourhoods as in wealthy ones. But past psychological and sociological theorists have placed considerable emphasis on the importance of these influences.

What are the environmental factors that do influence personality? Little success has yet been achieved in discovering the answer to this question, despite considerable efforts to do so. There may be a clue, however, in the greater than expected similarity of identical twins when they are raised together. These individuals are known to copy each other's tastes in clothes, music, friends etc. They probably often mould their own self-concept on the reflection of it that they see in their twin. They may well answer a personality questionnaire by trying to second-guess what their twin would say, almost as if they were being tested for the reliability of their answers. Of course they will often be wrong, one reason why the twin correlation is usually only 0.5 not 1.0. These data suggest that our self-concept is moulded during development as an adaptation of our

unique genetic predispositions to our social environment. The nature of our characteristic interactions with those close to us, such as parents, siblings and especially close friends, is probably the most important environmental influence on personality development.

Research on stress and coping

Research on stress and coping strategies has its roots both in the biological and the social areas of psychology. It has been known since the beginning of the century that the experience of stress can have quite serious effects on health. It may be recalled that Freud's observation of the possible psychological origins for physical symptoms was instrumental in the development of his psychodynamic theory of personality. Walter Cannon (1932), the distinguished American physiologist, shortly afterwards discussed the bodily reactions involved in the response to stressful stimuli as part of the body's adjustment to dangerous situations. Later, Hans Selye (1956) described in detail the stages of physical preparedness which the nervous and hormonal systems pass through during an alarm reaction. If the stressful stimuli persist, the body adapts to a state of constant preparedness for fight or flight (the General Adaptation Syndrome); however, this strain takes its toll in terms of a heightened propensity for cardiovascular disease and susceptibility to other diseases. According to this view, whatever the source of stress, its persistence will have the same general effects on the body and the health of the individual. While the physiologists were emphasizing stress outcomes in terms of physical health and bodily reactions, social psychologists were looking for the major causes of stress in the situation. For many years, the most important and identifiable causes were thought to lie in the major life events which we all experience: the death of a close relative, moving house, marriage, divorce, having children are stressful life events. These were all given a stress tally, and if you totted up too high a score in the course of a year you were thought to be very susceptible to various stress-related diseases (Holmes and Rahe, 1967).

In practice life is more complicated than either of these two approaches implies. Stress-related disease is not easily predictable from objective measures of environmental stressors. Some people seem to succumb easily with very little apparent pressure, while others withstand everything life throws at them and emerge unscathed. We would all like to know their secret! Various attempts have been made to relate these differences in stress response to personality. The largest amount of research on this topic has focused on the Type A behaviour pattern. In the 1950s two American cardiologists, Friedman and Rosenman, first described this behaviour pattern, which involves extreme competitiveness, impatience, hostility and direct, explosive speech (see Friedman and Rosenman, 1974). Subsequently many studies have confirmed the presence of a relationship between Type A behaviour and susceptibility to coronary heart disease. Two very large studies, the Western Collaborative Group Study (WCGS; Rosenman *et al.*, 1964) and the Framingham Heart Study (Haynes *et al.*, 1978) found Type A to be a predictor of coronary heart disease in initially healthy men and women. Such individuals seem to respond to stress, particularly uncontrollable stress, by increasing their work rate and becoming more competitive and hostile. The aspects of Type A that are most associated with coronary risk are hostility and the tendency not to express anger. Type A individuals react more strongly to stress with increases in heart rate and blood pressure

and elevated levels of adrenal cortical hormones. Recent research has muddled the picture, however, and caused considerable controversy. A longterm follow-up of heart attack survivors from the WCGS found that post heartattack victims who were Type A actually survived longer than others. In some way being Type A seems to protect against further fatal heart attacks, although it is not known whether this protection has a biomedical basis, or whether Type As take care of themselves better following a scare. There is evidence that individuals can learn to reduce the risky behaviours and thereby reduce the chance of subsequent heart attacks.

Type A behaviour (increasing work-rate and competitiveness, etc.) could be thought of as a characteristic strategy for coping with stress. A more widely accepted cognitive approach to stress and coping has been proposed by the clinical psychologist Richard Lazarus. In modern life, stressors come in a variety of guises: illness or death of a relative, too much work or no work, conflict with teachers, supervisors or relatives, role conflict (e.g. between being a good husband or wife and a good employee) or physical stressors like heat, poor lighting, natural disasters, and so on. How stressful we find these depends on their personal significance to us. Lazarus and Folkman (1984) suggested that we initially appraise the situation as being potentially harmful or threatening (primary appraisal), then we appraise our own coping resources available for dealing with the problem (secondary appraisal). Coping strategies fall into two major categories, problem-focused (planning ways of removing the stress by actively dealing with the problem) and emotion-focused (attempting to remove the stress by ignoring it or attending to something else). According to Lazarus and Folkman, which of these coping strategies is most effective will depend on the situation. However, our own research (Tyler and Cushway, 1992; Cushway and Tyler, 1994) has found that using emotion-focused strategies, such as avoidance coping, has relatively poor effects on mental health outcomes such as anxiety and depression.

Much recent research has been directed at finding personality dimensions which influence these cognitive appraisals of stress and the person's ability to cope. For example, some people seem to display helplessness in the face of stress, a feeling which seems to be conducive to the onset of illness and even death. Psychoanalytic theorists (Engel, 1968) have described a 'giving-up, givenup' complex which is associated with a lower sense of worth, a loss of gratification or relationships with others, confusion about past, present and future and reactivating of past episodes of giving up. This complex is very similar to the learned helplessness concept described by recent learning theorists (Seligman, 1975) as a basis for depression. When animals or people are put in a situation where they cannot control the onset of an unpleasant or stressful experience, they give up trying to escape and fatalistically endure it. The difficulty with helplessness considered as a general personality dimension is that people are quite discriminating and display helplessness in some situations but not others.

A more cognitive approach to helplessness in coping focuses on the explanatory style which people adopt when they are attributing causes to events (Peterson and Seligman, 1987). A pessimistic explanatory style is one which attributes unpleasant events to personal, long-lasting and pervasive causes: 'it's my fault, everything I do is wrong, it affects all my work'. There is good evidence which links a pessimistic explanatory style to lower performance in academic work, in sporting events and in the workplace and even to illness and death up to 35 years later (Peterson *et al.*, 1988). While the helplessness-

ness and pessimism research focuses on personality characteristics of people who are affected by stress, other research is concentrating on people who are resistant to stress. For example, Antonovsky (1987) believes that stress-resistant people have a sense of coherence, or a feeling that the world is comprehensible, manageable and meaningful. For them, stresses are challenges which they understand and feel that they have the resources to meet. Bandura (1982) would argue that they have a strong sense of self-efficacy or enduring belief that they can undertake an activity and eventually achieve a desired goal. People who have high efficacy expectations are more willing to take on a challenge, and more persistent when their efforts are frustrated. Scheier and Carver (1987) have also discussed the role of generalized expectancies about outcomes; optimists have generally favourable expectations about the future (regardless of whether they can personally influence it or not) while pessimists have unfavourable ones. Optimists are less likely to withdraw from stressful situations, experience less distress and engage in more active, problem-focused coping.

Summary

Research in the areas of behaviour genetics and stress and coping illustrates the extent to which contemporary psychologists are breaking away from the constraints of the traditional explanations of the origins of individual differences and combining forces to improve understanding. Even social-cognitive theorists, such as Mischel, once highly critical of the trait theorists for their emphasis on individual consistency (the essence of a traditional view of personality), are finding that they cannot sensibly describe individual differences in the cognitive systems which they believe to govern behaviour without considering personality dimensions. Meanwhile behaviour geneticists, while confirming the importance of inherited differences, are also providing the evidence for an even larger contribution from social-cognitive influences in individual differences in behaviour. The contribution of psychoanalytic theory, once shunned by respectable academic psychology, is gradually being recognized again, especially in the area of stress and coping. So far this convergence of ideas has not led to an integrated theory, and there are still disagreements among the theorists, not least over the amount of emphasis that should be given to the characteristics of the situation compared with those of the individual. So it may be optimistic to suggest that the problems of human individual differences will soon be solved, but I am an optimist.

Further reading

- KLINE, P. (1993) *Personality: The Psychometric View*, London, Routledge.
 MISCHEL, W. (1993) *Introduction to Personality*, 5th ed., Orlando, FL, Harcourt, Brace, Jovanovich.
 PERVIN, L.A. (1993) *Personality: Theory and Research*, 6th ed., Chichester, Wiley.

References

- ADORNO, T.W., FRENKEL-BRUNSWIK, E., LEVINSON, D.J. and SANFORD, R.N. (1950) *The Authoritarian Personality*, New York, Harper.
- AIKEN, L.R. (1985) *Psychological Testing and Assessment*, 5th ed., Newton, MA, Allyn & Bacon.
- ANTONOVSKY, A. (1987) *Unravelling the Mystery of Health*, San Francisco, Jossey-Bass.
- BALAY, J. and SHEVRIN, H. (1988) 'The subliminal psychodynamic activation method', *American Psychologist*, **43**, 161–74.
- BANDURA, A. (1982) 'Self-efficacy mechanism in human agency', *American Psychologist*, **37**, 122–47.
- BANDURA, A. (1986) *Social Foundations of Thought and Action: A Social Cognitive Theory*, Englewood Cliffs, NJ, Prentice-Hall.
- BAUMEISTER, R.F. and CAIRNS, K.H. (1992) 'Repression and self-presentation: when audiences interfere with self-deceptive strategies', *Journal of Personality and Social Psychology*, **62**, 851–62.
- BRODY, N. (1988) *Personality: In Search of Individuality*, London, Academic Press.
- Buss, A.H. and PLOMIN, R. (1975) *A Temperament Theory of Personality Development*, New York, Wiley.
- Buss, A.H. and PLOMIN, R. (1984) *Temperament: Early Developing Personality Traits*, Hillsdale, NJ, Erlbaum.
- BYRNE, D. (1961) 'The repression-sensitization scale: Rationale, reliability and validity', *Journal of Personality*, **29**, 334–49.
- CANNON, W.B. (1932) *The Wisdom of the Body*, New York, Norton.
- CATTELL, R.B. (1946) *Description and Measurement of Personality*, London, George Harrap.
- COOK, J.R. (1985) 'Repression-sensitization and approach-avoidance as predictors of response to a laboratory stressor', *Journal of Personality and Social Psychology*, **49**, 759–73.
- COSTA, P.T., Jr. and MCRAE, R.R. (1985) *The NEO Personality Inventory Manual*, Odessa, FL, Psychological Assessment Resources.
- CUSHWAY, D. and TYLER, P.A. (1994) 'Stress and coping in clinical psychologists', *Stress Medicine*, **10**, 35–42.
- ENGEL, G.L. (1968) 'A life setting conducive to illness: the giving up-given up complex', *Bulletin of the Menninger Clinic*, **32**, 355–65.
- EPSTEIN, S. (1983) 'Aggregation and beyond: some basic issues on the prediction of behavior', *Journal of Personality*, **51**, 360–92.
- EYSENCK, H.J. (1944) 'Types of personality—a factorial study of 700 neurotic soldiers', *Journal of Mental Science*, **90**, 851–61.
- EYSENCK, H.J. and EYSENCK, S.B.G. (1976) *Psychoticism as a Dimension of Personality*, New York, Crane, Russak.
- FRIEDMAN, M. and ROSENMAN, R.F. (1974) *Type A Behavior and your Heart*, New York, Knopf.
- GOLDBERG, L.R. (1990) 'An alternative "description of personality": the big-five factor structure', *Journal of Personality and Social Psychology*, **59**, 1216–29.
- GRUNBAUM, A. (1984) *Foundations of Psychoanalysis: A Philosophical Critique*, Berkeley, University of California Press.
- HALL, C.S. and LINDZEY, G. (1957) *Theories of Personality*, New York, Wiley.
- HARTSHORNE, H. and MAY, M.A. (1928) *Studies in the Nature of Character, I: Studies in Deceit*, New York, Macmillan.

- HAYNES, S.G., LEVINE, S., SCOTCH, N., FEINLEIB, M. and KANNEL, W. (1978) 'The relationship of psychosocial factors to coronary heart disease in the Framingham study', *American Journal of Epidemiology*, **107**, 362–83.
- HOLMES, T.H. and RAHE, R.H. (1967) 'The social readjustment rating scale', *Journal of Psychosomatic Research*, **11**, 213–18.
- JOHN, O.P. (1990) 'The "Big Five" factor taxonomy: dimensions of personality in the natural language and in questionnaires,' in L.A. PERVIN (Ed.) *Handbook of Personality: Theory and Research* New York, Guilford, 66–100.
- KLINE, P. (1991) *Intelligence: The Psychometric View*, London, Routledge.
- KLINE, P. (1993) *Personality: The Psychometric View*, London, Routledge.
- LAZARUS, R.S. and FOLKMAN, S. (1984) *Stress, Appraisal, and Coping*, New York, Springer.
- LOFTUS, E.F. (1993) 'The reality of repressed memories', *American Psychologist*, **48**, 518–37.
- MARKUS, H. (1977) 'Self-schemata and processing information about the self', *Journal of Personality and Social Psychology*, **35**, 63–78.
- MASSON, J.M. (1985) *The Assault on Truth: Freud's Suppression of the Seduction Theory*, New York, Penguin.
- MCRAE, R.R. and COSTA, P.T., Jr. (1990) *Personality in Adulthood*, New York, Guilford Press.
- MCRAE, R.R. and JOHN, O.P. (1992) 'An introduction to the five factor model and its application', *Journal of Personality*, **60**, 175–215.
- MILLER, N.E. and DOLLARD, J. (1941) *Social Learning and Imitation*. New Haven, Yale University Press.
- MISCHEL, W. (1968) *Personality and Assessment*, New York, Wiley.
- MISCHEL, W. (1990) 'Personality dispositions revised and revisited: a view after three decades', in L.A. PERVIN (Ed.) *Handbook of Personality: Theory and Research*, New York, Guilford, 111–34.
- NORMAN, W.T. (1963) 'Toward an adequate taxonomy of personality attributes: replicated factor structure in peer nomination personality ratings', *Journal of Abnormal Social Psychology*, **66**, 574–88.
- PETERSON, C. and SELIGMAN, M.E.P. (1987) 'Explanatory style and illness', *Journal of Personality*, **55**, 237–65.
- PETERSON, C., SELIGMAN, M.E.P. and VAILLANT, G.E. (1988) 'Pessimistic explanatory style is a risk factor for physical illness: a thirty-five year longitudinal study', *Journal of Personality and Social Psychology*, **55**, 23–7.
- PLOMIN, R. and DANIELS, D. (1987) 'Why are children in the same family so different from each other?', *Behavioral and Brain Sciences*, **10**, 1–16.
- PLOMIN, R., CHIPUER, H.M. and LOEHLIN, J.C. (1990) 'Behavioral genetics and personality', in L.A. PERVIN (Ed.) *Handbook of Personality: Theory and Research*, New York, Guilford, 225–43.
- POPPER, K. (1963) *Conjectures and Refutations: The Growth of Scientific Knowledge*, New York, Harper.
- ROSENMAN, R.H., FRIEDMAN, M., STRAUS, R. WURM, M., KOSITCHEK, R., HAAN, W. and WERTHESEN, N.T. (1964) 'A predictive study of coronary heart disease: the Western Collaborative Group Study', *Journal of the American Medical Association*, **189**, 15–22.
- SCHEIER, M.F. and CARVER, C.S. (1987) 'Dispositional and physical well-being: the influence of generalized expectancies on health', *Journal of Personality*, **55**, 169–210.
- SELIGMAN, M.P.E. (1975) *Helplessness: On Depression, Development, and Death*, San Francisco, Freeman.
- SELYE, H. (1956) *The Stress of Life*, New York, McGraw-Hill.
- SPEARMAN, C. (1904) 'General intelligence, objectively determined and measured', *American Journal of Psychology*, **15**, 201–93.
- THURSTONE, L.L. (1938) *Primary Mental Abilities*, Chicago University Press.

- TYLER, P.A. and CUSHWAY, D. (1992) 'Stress, coping and mental well-being in hospital nurses', *Stress Medicine*, **8**, 91–8.
- WEINBERGER, J. and SILVERMAN, L.H. (1987) 'Subliminal psychodynamic activation: a method for studying psychoanalytic dynamic propositions', in R.HOGAN and W.JONES (Eds) *Perspectives in Personality: Theory, Measurement, and Interpersonal Dynamics*, Greenwich, CN, JAI Press, 251–87.
- WILLERMAN, L. (1975) *Individual and Group Differences*. New York, Harper's College Press.