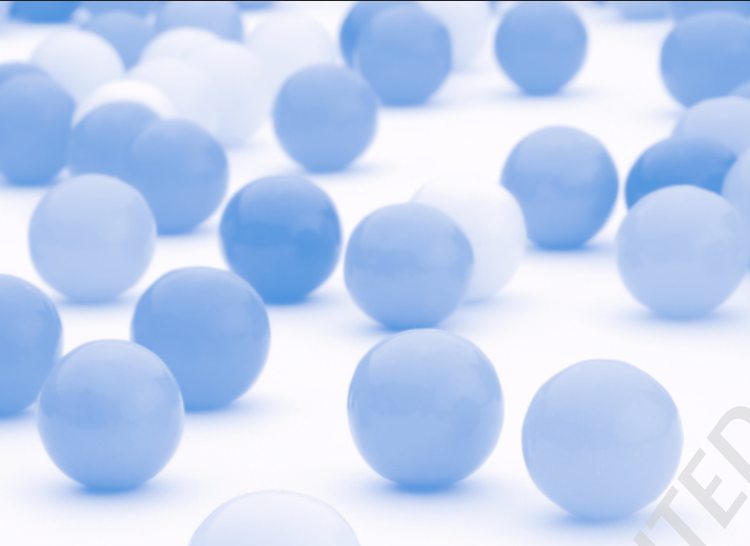


1 Introducing Individual Differences – From Everyday to Psychological Questions



LEARNING OUTCOMES

BY THE END OF THIS CHAPTER, YOU SHOULD BE ABLE TO ANSWER THE FOLLOWING FIVE KEY QUESTIONS:

1. What are the major topics in individual differences research?
2. How is individual differences research different from other areas of psychology?
3. What are the main goals of individual differences research?
4. What are the main areas of application of individual differences research?
5. What topics of controversy or public debate will be covered in this book?

KEY WORDS

Behavioral Genetics • Consistent Patterns of Behavior • Differential Psychology • Fluency
• Heritability • Intelligence • Intelligence Theory • Longitudinal Data • Originality • Taxonomy
• Trait

CHAPTER OUTLINE

- | | |
|--|--|
| 1.1 INTRODUCTION 2 | 1.7 BORN DIFFERENT? 12 |
| 1.2 PERSONALITY:
A COMMONSENSE IDEA 3 | 1.8 OTHER ABILITIES 15 |
| 1.3 DESCRIBING INDIVIDUALS 5 | 1.9 VARIABILITY AND CHANGE: MOTIVATION
AND MOOD STATES 16 |
| 1.4 ABNORMALITY 7 | 1.10 CREATIVITY 18 |
| 1.5 INTELLIGENCE, COMPETITION,
AND ADAPTATION 8 | 1.11 LEADING THE WAY 20 |
| 1.6 PREDICTING SUCCESS 10 | 1.12 INTERESTS 21 |

1.1 INTRODUCTION

The study of individual differences is part of a well-established tradition in psychology that dates back more than a century. It encompasses several nonobservable or “latent” constructs, such as intelligence and personality, which represent major sources of variation in behavior. This makes individual differences a unique area in psychology. Whereas most psychological theories pretty much assume that everybody is the same and hence attempt to identify the universal aspects of human behavior, individual difference theories are concerned with *differences* between people, or what makes everyone unique.

For example, cognitive psychologists may try to explain the processes underlying short-term memory, whereas intelligence researchers may explain why some people have better short-term memory than others (Deary, 2001). Social psychologists may explain obedience to authority (Milgram, 1963), while personality theories may tell us why some people are more obedient than others (Adorno *et al.*, 1950). Educational psychologists may assess the impact of anxiety on learning (Darke, 1988), whereas personality researchers may assess an individual’s likelihood of experiencing anxiety (Zeidner, 1998). Neuropsychologists may test whether recreational drugs, such as Ecstasy, have long-term effects on individuals’ level of aggressiveness, whereas differential psychologists may investigate which individuals are more likely to use recreational drugs and why (Zuckerman, 1994).

The goal of individual difference researchers, then, is to identify the most general aspects underlying individuality and conceptualize a theoretical classification for predicting differences and similarities in human thought, emotionality, and behavior. Simply put, individual difference researchers are concerned with explaining *how* and *why* people are different from one another, and aim to achieve a wide understanding of the psychological processes that determine such differences.

Throughout this chapter, I introduce the topic of individual differences from the perspective of real-life problems. In other words, I use a commonsense approach to explore the longstanding psychological questions that gave rise to the academic area of individual differences that is known as differential psychology. Although the boundaries of differential psychology are yet to be established, the label “individual differences” is normally used to refer to personality and intelligence. Accordingly, half of this book is, in one way or another, dedicated to these variables (see Chapters 2, 3, 5, 6, 7, and 8). However, personality and intelligence are not sufficient to explain differences between individuals, and the study of individual differences involves more than personality and intelligence theories. Thus, this book also covers psychopathology or abnormal behavior (Chapter 4), motivation and mood states (Chapter 9), creativity (Chapter 10), leadership (Chapter 11), and interests (Chapter 12). An overview and basic description of the chapters is presented in Figure 1.1.

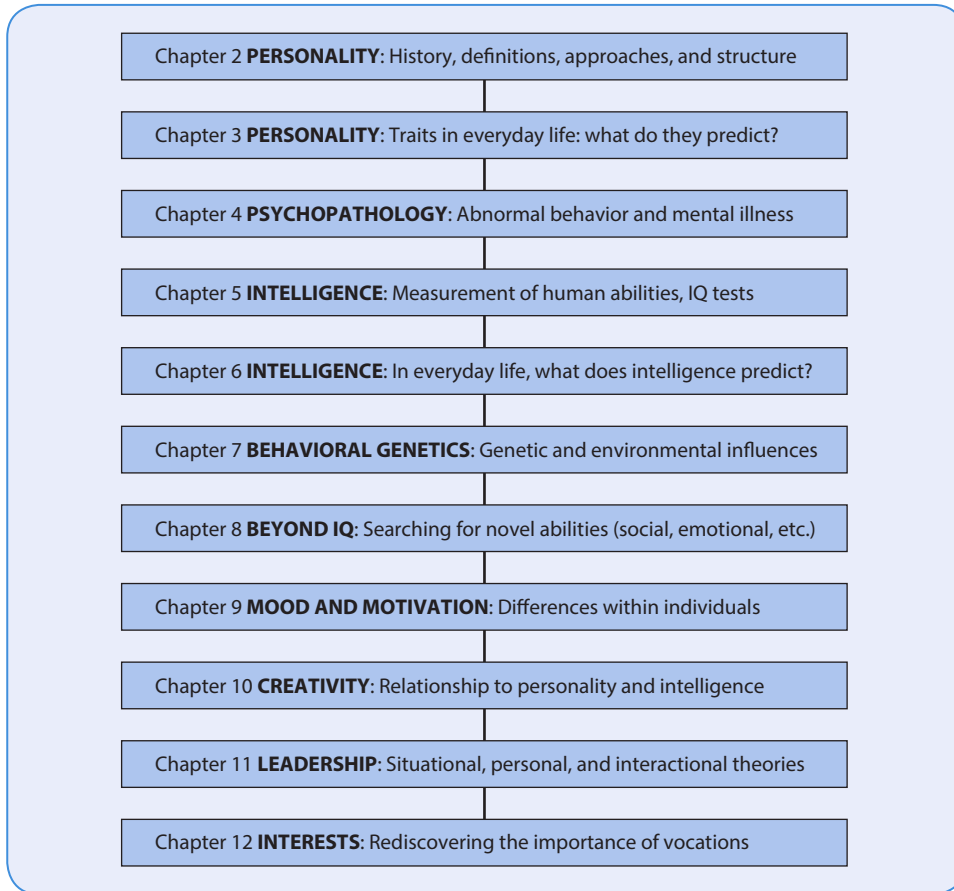


FIGURE 1.1 *Book contents at a glance*

1.2 PERSONALITY: A COMMONSENSE IDEA

Differential psychology aims to explain observable differences between individuals in terms of underlying psychological determinants. This implies that certain psychological differences, in the way people feel or think, lead to manifest differences in the way they act. To this end, differential psychologists collect enormous amounts of information on how people behave, paying particular attention to their consistent behavioral patterns, and establish comparisons

differential psychology

the academic study of observable differences between individuals in terms of their underlying psychological determinants.

between different people. This enables them to predict an individual's likelihood of behaving in one way or another. Take, for instance, the following examples:

- Chloe is 21 and loves partying. She has many friends and an active social life. She prefers the company of others to studying or reading, and is easily bored staying at home.
- Laura, also 21, spends most weekends at home, reading and writing. She hates loud parties and dislikes talking to strangers. She enjoys spending time with her family and a few close friends, but makes no effort to meet other people.

Now, considering the information you have about Chloe and Laura, try to answer the following questions:

- a) Are you more similar to Chloe or Laura?
- b) What about your friends? Are they more similar to Chloe or Laura?
- c) How would you describe Chloe and Laura?
- d) What else would you need to know about Chloe and Laura to know what they are like?
- e) Why are Chloe and Laura different?

There are several assumptions underlying the above examples. First, we can see that individuals, even of the same age and gender, have different interests (e.g., reading, going out, meeting new people). Second, these interests may determine the way they usually behave; that is, their choices of behavior across a range of situations. Thus, if Chloe loves going to parties, she will be more likely to go partying than if she hated parties (as in Laura's case). Third, and following on from the second point, we can see that an idea implicit in the above examples is that individuals are aware of what they like and dislike. Not only are actors (e.g., Chloe and Laura) aware, but so too are observers (whoever is describing others' behavior). We are therefore faced with two perspectives for assessing differences in behavior; namely, self- and other-observation. Last but not least, the examples suggest that people tend to act in a consistent manner; that is, that there are specific patterns of behavior that are common or frequent in some individuals, but strange or infrequent in others.

In brief, the above examples suggest that:

- Different people may have different interests, values, and preferences.
- People's interests, values, and preferences are reflected in their behaviors.
- We are aware, as actors and observers, of these interests, values, and preferences.
- People tend to act in a somewhat consistent manner across space and time (see Figure 1.2 for a graphical representation of these assumptions).

All of these assumptions are at the center of individual difference research, in particular theories of personality traits, which are the focus of Chapters 2 and 3.

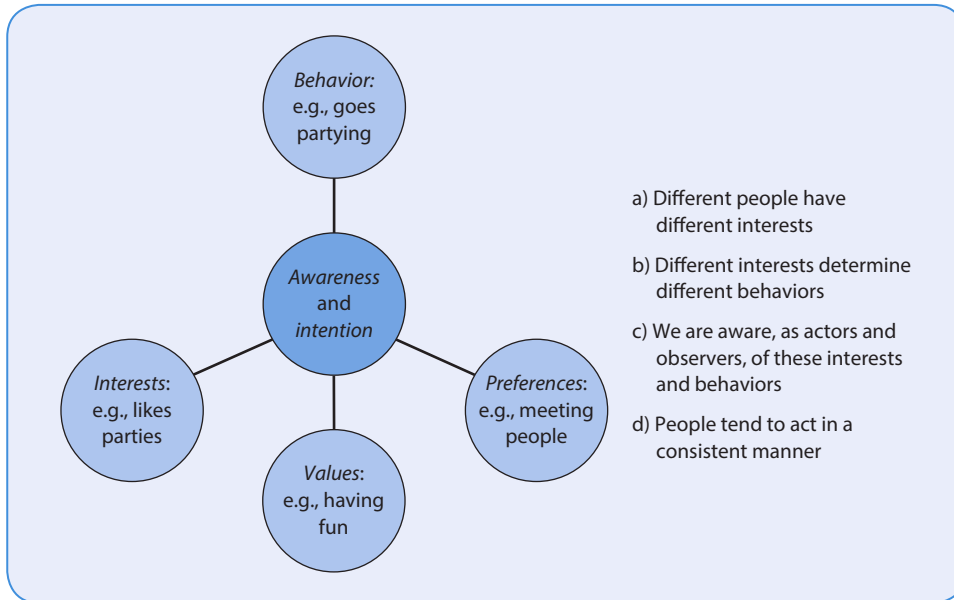


FIGURE 1.2 Traits as dispositions to act according to interests, values, and preferences

1.3 DESCRIBING INDIVIDUALS

Theories of personality conceptualize behavioral differences in terms of wide psychological characteristics or **traits** (see Chapter 2), which are partly inherited and remain relatively stable throughout the lifespan, especially after adulthood. In the same way that we can describe individuals according to their physical characteristics (e.g., tall, blond, slim, fat, pale), personality theorists have attempted to develop a classification or **taxonomy** of individuals in terms of their psychological characteristics (e.g., extraverted, conscientious, agreeable, shy).

In that sense, the first aim in putting forward the concept of personality traits is *descriptive*; that is, to identify the major patterns of behavior by which people can be compared. In physical terms, we can compare individuals by their height, weight, color of hair, skin, and so on, and in fact there are as many behavioral aspects of individual differences as there are physical ones. However, while it is easy to observe differences in physical complexity, it is difficult to observe differences in psychological variables, such as behavior, feelings, and thoughts, let alone to understand them. For instance, we can in most cases tell whether a person is *taller* than others, but it is normally far more complicated to tell whether someone is *shyer* than others. This would require not only systematic observation of how much a person speaks, but also an estimate of their intention to speak.

trait an internal psychological disposition that remains largely unchanged throughout the lifespan and determines differences between individuals. Examples of traits are extraversion, neuroticism, and agreeableness.

taxonomy a system of classification; in differential psychology, taxonomies identify the major personality or ability factors by which people differ.

Another important issue is the *usefulness* of establishing a classification of individuals' tendencies to behave in specific ways; that is, whether it can help us improve any aspect of our lives, such as work or relationships. Individual differences are measured through psychometric instruments such as performance tests or self-report inventories, consisting of standardized multiple-choice questions. Crucially, scores on these measures are related to observable behaviors and predict differences and similarities between individuals across a wide range of settings (e.g., school, work, sports, everyday life). To the extent that such differences can be objectively assessed and related to real-life indicators or behavioral outcomes, they will help us to understand why and how individuals differ. There are several applied implications of theories aimed at providing a broad classification of human behavior, thoughts, and emotionality. Below, and in Figure 1.3, I consider a handful, but there are many others (this is something you may want to think about yourself!).

Teachers would benefit from knowing whether students have learning difficulties, or whether they are capable of learning so fast that they may become bored with the conventional curricula. Employers would benefit if they could identify the applicants who would be best suited for a job, especially when previous work experience is of little importance. Sports managers would find it useful to know which psychological aspects of their athletes' personality determine whether they perform well at crucial stages of a competition. Army officers would find it useful to predict which recruits are best suited to take the lead in particular missions (assuming, of course, that war is necessary). Police authorities may like to have an accurate understanding of the motives underlying criminal offenders. People in general may want to know which men or women are compatible with them for establishing friendships and business or

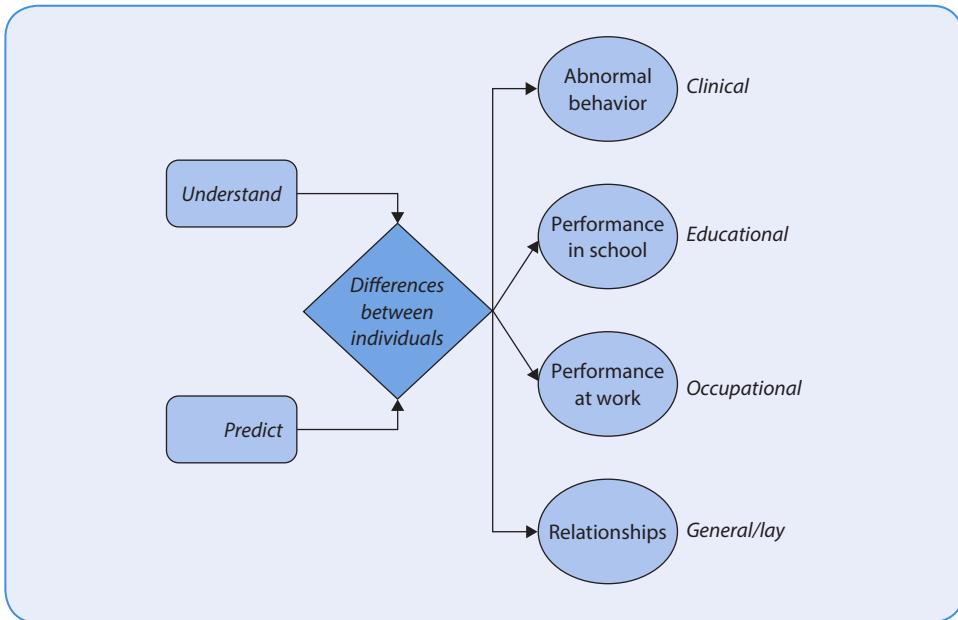


FIGURE 1.3 Differential psychology: Goals and applications

romantic relationships. Furthermore, knowing what others like and dislike may help us relate to others, and knowing what others are like may lead us to act in specific ways.

As can be seen, there are several avenues by which individual difference research can make an important contribution to our understanding of everyday life problems. No matter how abstract theories of individual differences may seem, the goal is always two-fold; namely, theoretical *and* applied. To the extent that differential psychology aims to predict and understand human behavior in a general sense, this area of research is psychological par excellence. Furthermore, clinical psychology, one of the major areas of psychology concerned with the study and treatment of psychopathology (see Chapter 4), would be virtually undeveloped without the use of personality theories and assessment methods, as these play a vital role in diagnosis and therapeutic strategies.

1.4 ABNORMALITY

Most individual difference constructs are developed from real, everyday settings and refer to normal behavior. In clinical contexts (e.g., hospitals and psychiatric institutions), psychologists were able to develop theories of abnormal behavior and establish the criteria for judging “psychological health,” which is the politically correct term for normality. The theoretical foundations of personality research can be traced back to the beginnings of clinical observation (from Emil Kraepelin to Sigmund Freud and Hans Eysenck), while the psychometric foundations of individual difference assessment originated in educational settings, specifically through attempts to identify the major determinants of school success (Alfred Binet in France and Charles Spearman in England). Insofar as individual differences are expressed in terms of both normal and abnormal behaviors, psychopathology and personality are so closely related that the former may be thought of as a subclass of the latter (see Figure 1.4).

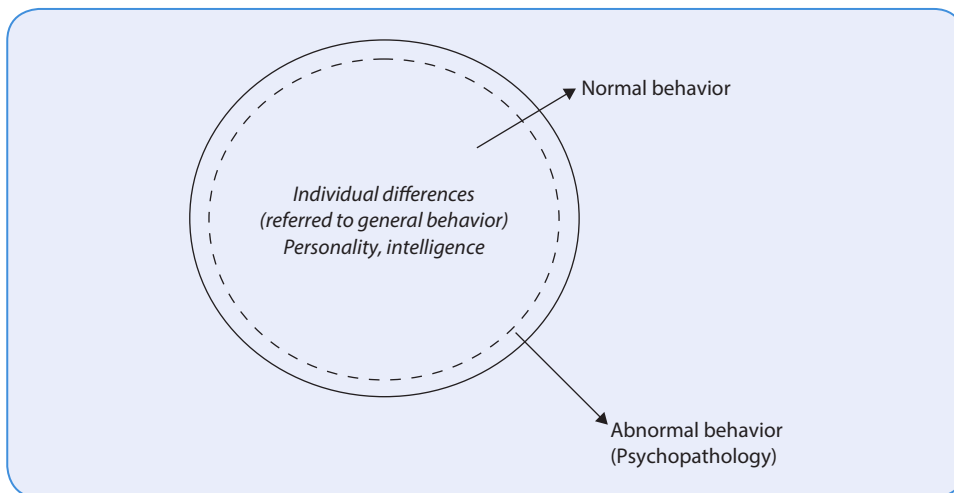


FIGURE 1.4 Normality and abnormality in differential psychology and psychopathology

Individual difference research has often been criticized for its political and social implications, and psychopathology's notion of "normality" is no exception (Szasz, 1958). Yet any explanation of human behavior will inevitably lead to generalizations involving a more or less explicit notion of typical and deviant behaviors. Just as medical doctors use predefined classifications to judge, for example, whether the malfunctioning of an organ may have caused painful symptoms, clinical psychologists need to establish whether a certain psychological complexity may be the cause of problematic behaviors in their patients (see Chapter 4). This can only be done by *measuring* levels of a given dimension and *comparing* these scores with predefined, normative levels. For example, whether someone is obese or not will depend on their weight, and whether someone is depressed or not will depend on whatever measure of depression we use. In both cases, though, it is necessary to identify the parameters of normality to determine the signs of pathology.

Unfortunately, the term "normality" is often abused and, what is worse, distorted by prejudiced individuals who may need to confirm their beliefs of self-superiority or normality. This alone, however, should not be a reason to abandon any comparative criteria. Few people would claim that, because fat or slim people experience prejudice, doctors should abandon their criteria for assessing obesity, or stop considering obesity as a health-related variable. The same can be said about psychological measures such as intellectual ability. Just because some individuals make fun of those they consider less bright, psychologists should not refrain from classifying people in terms of their intellectual abilities. It is a mistake to judge the usefulness of anything by the consequences of its misuse. We do not judge the usefulness of cars by the number of road accidents or drink-and-drive cases; we do not judge the usefulness of e-mail by the number of "spam" messages received; and we should not judge the usefulness of personality and intelligence theories by the incapacity (or unwillingness) of certain individuals to understand the meaning of individual differences. Indeed, scientific knowledge can help combat prejudiced and irrational beliefs about others, though much more is needed to succeed in this task. Moreover, individual difference theories should also be able to explain why some people are more likely to be prejudiced than others, and whether this type of behavior can be prevented (Adorno *et al.*, 1950).

1.5 INTELLIGENCE, COMPETITION, AND ADAPTATION

Normality does not always represent the most "desirable" classification. In fact, there are several situations in which you may be better off *distancing* yourself from the norm. For instance, most people have dental caries, but every dentist will tell you that it is healthier and better for your teeth not to have them (indeed, that is one of the reasons many people choose not to go to the dentist). Likewise, most university students in the UK (apologies for bringing this up!) are in debt, but surely those who are would be happier being part of the minority of "abnormal," debt-less students.

Even in psychological terms, it is not always better to be categorized within the majority. One clear example is **intelligence**, or the ability to solve mental problems that are related to performance in school, work, and most real-life settings. Both logically and statistically, most people are of average intelligence, though most of us would prefer to be considered among the brightest people in the world; in fact, it is this desire that may largely explain people's negative attitudes toward IQ tests! Even being more intelligent than most people in a country, city, neighborhood, or school would be regarded as a very desirable form of abnormality.

intelligence the ability to solve mental problems that are related to performance in school, work, and most real-life settings.

Individual differences in intelligence refer to an individual's ability to solve problems that contribute toward their successful adaptation to the real world. Problems can range from very ordinary, everyday tasks to complex mathematical tests. This ability, which can be broken down into more specific abilities, is measured through a series of standardized tasks where individuals compete for the highest possible scores, pretty much as they compete in real-life settings. Unlike other areas of differential psychology, such as personality, intelligence is not assessed via self- or other-reports but through performance tests. This has made IQ tests a powerful and widely used tool for classifying and selecting individuals in educational and occupational settings (Furnham, 2005; see Table 1.1). But can we truly know whether certain individuals are more intelligent than others, and what does it mean to be more intelligent?

Although these questions will be addressed in depth elsewhere (notably in Chapters 5, 6, and, less directly, 7 and 8), consider the following example:

On the first day of school, a teacher asks his pupils (about 6 years of age) a number of questions, such as "What time is it now?," "How much do $4 + 7$ make?," "What is a zebra?," and "Why is it dark at night?" Some answer all questions correctly, while others do not. Furthermore, some pupils know the answer to some but not other questions, and even among those who get all the answers right, some are able to respond quicker than others, and some provide a more advanced explanation.

We may ask two simple questions: Why are some pupils better at solving the problems, and what are the *implications* of being better or worse at this, apparently very school-like, exercise? Unfortunately, the answers are far from simple and many

Table 1.1 *Intelligence: Individual differences in competition and adaptation*

- *Intelligence*, also known as intellectual ability, IQ, cognitive ability, or "g" (for general intelligence).
- Measures an individual's ability to *adapt* and *solve problems*.
- Problems can range from *complex* mathematical tests to simple reaction time (RT) and even *practical* tasks.
- Intelligence can be broken down into minor skills or *abilities*.
- It is measured through *standardized* multiple-choice tests.
- Individual's *performance* is compared to the *norm* (that of others).
- IQ is a *powerful* and widely used *tool* for classification and selection of individuals.
- In educational and occupational settings, it has proven very *effective*.

differential psychologists (and even more laypeople) argue about these issues. While this book should enable you to develop an informed opinion on the validity of IQ tests, most of the controversies surrounding intelligence research are staged at more advanced levels and will only be introduced here.

Returning briefly to the example of the classroom, the question of why some pupils are better at solving the problems may have different answers. One possibility is that previously acquired knowledge (taught by their parents) may determine pupils' capacity to solve problems. Another possibility is that children differ in their intellectual curiosity, which may lead some but not others to search for the solutions to these problems. On the other hand, one could argue that the ability to tackle these and other similar mental problems successfully is largely dependent on the level of functioning of the brain, implying that most underlying mental processes and operations required to solve such problems may be more genetically than educationally determined.

At the same time, we need to address the question of whether it *matters* that one is better at this kind of problem solving. Looking at the above example, can we really claim that those children who answer more questions are more intelligent than others? This is an important question, in particular considering the extent to which laypeople and experts agree or disagree about what intelligence really is and what intelligence tests really measure.

Regardless of the specific types of ability test we employ, the answer is simple: problems that (a) require mental operations and (b) are related to indicators of competence in real-life settings may be considered a measure of intelligence (see again Table 1.1). By definition, then, intelligence measures are important because they allow us to make predictions about individuals' level of future achievement (i.e., scoring high on mental problem solving will indicate a high potential for success, and vice versa), and compare their performance based on objective problems rather than subjective or biased opinions.

1.6 PREDICTING SUCCESS

intelligence theory describes, understands, and predicts individual differences related to competition and adaptation.

It follows from our discussion in Section 1.5 that the central and immediate goal of intelligence research is highly pragmatic; namely, to predict future success and failure. Thus the essence of **intelligence theory** is to describe, understand, and predict individual differences related to competition and adaptation. There may be different abilities and individuals may be trained to develop different skills.

However, there will always be observable individual differences in performance, and those attributed to differences in mental efficiency, use of verbal and nonverbal information, and knowledge acquisition and retrieval are believed to be the cause of performance differences across a wide range of settings.

Critics of differential psychology, specifically those opposed to intelligence theory and research, have often argued that classifying individuals in terms of their abilities

or level of skills is over-simplistic and detrimental for both the individual and society, and that IQ tests may be used to discriminate against people, particularly economically disadvantaged individuals. It is, however, clear that such “discrimination” would be based on an empirical and rational evaluation of individuals’ attributes, which in a sense is the opposite of discrimination. As it is normally understood, discrimination refers to prejudgmental beliefs (“prejudice”) and negative attitudes toward an individual on the basis of their membership of a group and disregard for their individual qualities (Aronson, Wilson, & Akert, 2004), not their actual abilities.

Besides, the implications of acknowledging differences in intelligence are not necessarily negative. First, this may help us recruit the best people for each job, resulting in an economic gain for society (or would you rather recruit those less capable of doing the job?). Second, the individual would benefit from a more accurate and unbiased identification of their intellectual strengths and weaknesses, as teaching methods – and education in general – could be tailored to suit those who need it most and ultimately compensate for lower levels of intelligence. In fact, schools around the world tend currently to group children according to their age, assuming that age is the universal marker for intellectual development. Yet not all children from the same age group are equally able to learn and acquire knowledge. Third, it would be impossible to understand the processes underlying individual differences in cognitive ability if we did not have a way of measuring these differences in the first place; or could you, for instance, think of a way of understanding global warming without measuring temperature? Last but not least, differential psychology, as any other science, should be concerned with understanding its object of study rather than the consequences of its findings, whatever these are.

Another issue is that, although even the most enthusiastic IQ researchers accept that intelligence tests are not perfect, they are far superior to most alternatives, such as self-reports, interviews, biodata (a formalized, scored application form), or references (i.e., letters of recommendation). When the first IQ test was developed in France about a century ago (see Chapter 5, Section 5.3.3), the aim was to create an objective and effective tool to distinguish between fast and slow learners, with the intention of helping rather than punishing the latter (for instance by providing them with additional teaching and tutoring). More importantly, it was clear at this stage that *teachers’* judgments of pupils’ abilities were rather inaccurate, mostly because they were biased against children with disciplinary rather than intellectual problems.

Today, we could think of similar examples in the workplace and educational settings. When it comes to recruiting new staff or students, it is better to focus on what individuals can actually do than on who they may know (e.g., references, recommendations, networking), what they “may” have done in the past (CVs typically exaggerate previous achievements), and which groups (e.g., gender, race, religion) they belong to. Moreover, critics of IQ testing would probably accept that relying on a subjective interview (especially if it is unstructured) is by no means a better alternative to IQ tests. Figure 1.5 depicts some of the most widely used predictors of performance in occupational and educational settings.

Thus, the present book will deal, among other things, with the measurement of those individual differences identified as determinants of future success. Such

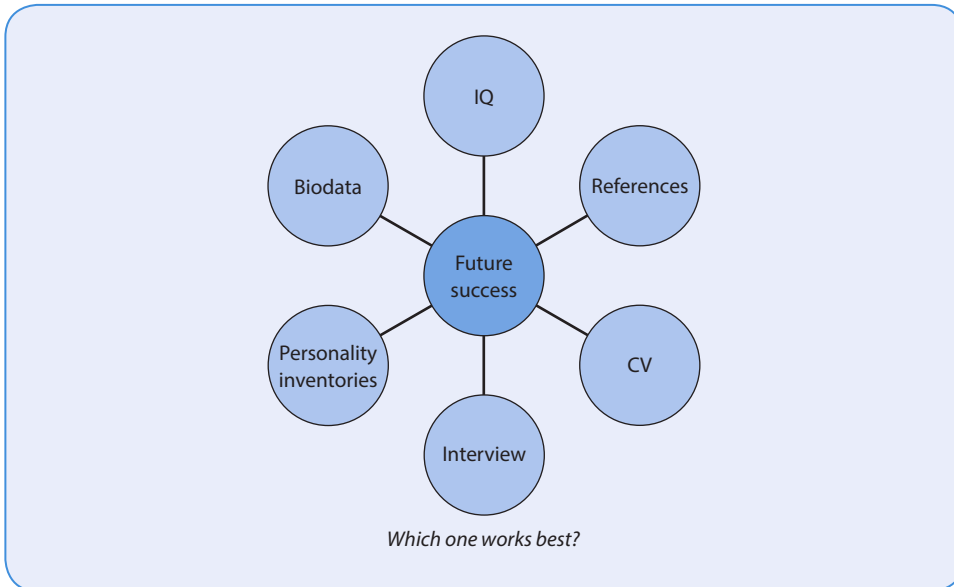


FIGURE 1.5 Different predictors of future success (including IQ)

differences are at the heart of intelligence theories and measurement, and will be the focus of Chapters 5 and 6.

1.7 BORN DIFFERENT?

If the first and most spontaneous observation we make about ourselves is that we differ from one another, the hypothesis that these differences may be inherited rather than acquired or “learned” must come very close to third. Thus the second, albeit often implicit, assumption is that we resemble our own parents much more than those of others. This assumption is arguably enhanced by the fact that individuals tend to be *physically* more alike if they are from the same family, though, as noted, physical similarities tend to be more noticeable than psychological ones. For example, it is more difficult to know whether a person is brighter than others than whether a person is darker than others.

While it is apparent that physical traits, such as ginger hair or prominent cheekbones, may be the result of inherited genetic information, psychological similarities may also arise from environmental influences, such as parental rearing, formal education, and relationships with friends. We are thus faced with a dual problem, namely:

- Identifying psychological similarities between members of the same family (for instance in personality and intelligence).
- Figuring out whether these similarities are the result of genes or mere exposure to the same environment.



PHOTO 1.1 *The nature versus nurture debate has been a central part of individual differences research for many decades. In particular, differential psychologists have attempted to assess the heritability of main personality traits and intelligence.*

Image courtesy of Tomas Chamorro-Premuzic.

Thanks to a combination of technological advances and the meticulous efforts of gathering **longitudinal data** (i.e., multiple measures of the same group of individuals, termed a cohort, across extended periods), in particular from twins, recent years have seen unprecedented progress in the study of the biological basis of individual differences, an area known as **behavioral genetics**. These findings are examined more closely in Chapter 7. As will be seen, there is compelling evidence for the idea that both personality and intelligence are influenced by genes; that is, that large aspects of our personalities and abilities are inherited (via genes) from our parents and previous ancestors (grandparents, great-grandparents, and so on).

On the one hand, the resemblance between biological parents and their children is striking enough to be noticeable even for laypeople. Thus it is often pointed out that someone is more similar (psychologically as well as physically) to their mother or father. This is not merely a descriptive observation but also a causal inference attempting to explain an individual's behavior. However, even if there is a similarity between parents and children, it would be difficult to prove that the underlying processes leading to this causal relationship are purely related to genetic factors. The question, then, is whether we are like our parents because of shared genes or because they *taught* us to be like them (see Figure 1.6).

longitudinal data

multiple measures of the same group of individuals, termed a cohort, across extended periods.

behavioral genetics

the study of the biological basis of individual differences.

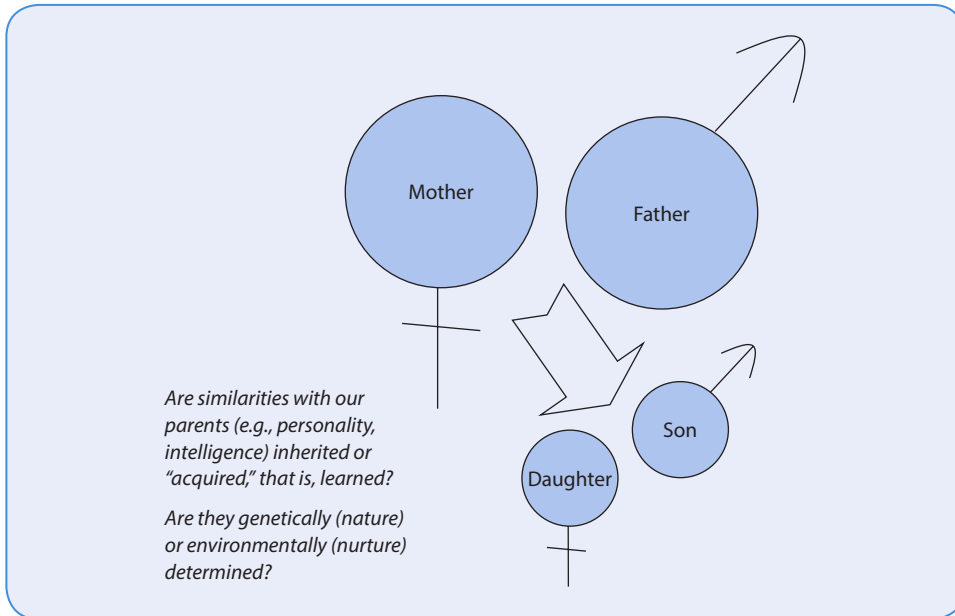


FIGURE 1.6 Genetic and environmental determinants of individual differences

Brothers and sisters are not always alike, are they? Likewise, some people seem to be completely different from their parents. Furthermore, some individuals are similar, but genetically unrelated, which makes it quite unreasonable to argue that the basis of individual differences is solely genetic. For example, adoptive children may be similar to their adoptive parents despite not sharing any genetic information.

Although the implications of a biologically based theory of personality and intelligence are problematic, particularly with regard to educational settings, serious research is needed to address the extent to which individual differences are inherited. If the first step of differential psychology is to *identify* the major aspects by which people differ, the second must be to understand the *causes* of these differences; that is, where they arise. Indeed, the question of whether differences are inherited (through nature) or acquired (through nurture) may represent the fundamental step toward an understanding of individual differences.

heritability the extent to which differences between individuals are due to genetic factors.

Unfortunately, findings on the **heritability** (the extent to which differences are due to genetic factors) of individual differences, particularly intelligence, have not always been reported in an objective, unbiased manner. Rather, the biological basis of individual differences has often been exploited to justify discriminatory claims – typically, of one group’s superiority over another – or, in other cases, refuted by the equally ideological claims of those attempting to persuade the public that “we are all the same,” at least when born. The truth, as we know it, is that people *are* different and nobody, not even identical twins, is born the same as anyone else. More importantly, it should be noted (and this will become clear in Chapter 7) that even if there is robust statistical evidence for the heritability of individual differences, this does not imply that the environment (i.e., education, learning, rearing, nurture) has no influence on our personality or

intelligence. On the contrary, identifying the degree to which traits are biologically influenced has helped us understand the degree to which nurture may influence individual differences. In short, then, both views are not incompatible but complementary.

In the same way that athletes may inherit a favorable condition for sports from their ancestors (such that a previous history of exercise, good nutrition, and a healthy lifestyle in general may lead to preliminary advantages), individuals may also inherit a specific physiological complexion that may predispose them to behave in certain ways more than others. Even if these processes were clearly outlined, however, it does not imply that factors other than genes may not play a role in shaping these general behavioral tendencies, preferences, and abilities.

Just as no person would ever become a professional athlete if they remained locked in a room all their life (“waiting for the genes to do the work”), no person would ever be capable of solving mathematical problems if they had never been taught mathematics, even if their parents were geniuses in that discipline. Likewise, no one would be able to play the piano if they had never seen a piano in his life, even if their father were Johann Sebastian Bach (1685–1750), who counted five accomplished musicians among his children (and many who were not). To paraphrase a basic information technology metaphor, you may have the fastest computer processor but few data stored on the hard drive, or, conversely, you may have a slow processor but invest the necessary time to store and load plenty of information on the hard drive. The question of nature versus nurture thus does not demand an “all-or-nothing,” “either/or” type of response, but a probabilistic estimate of the impact of one of a number of factors, as well as interactions among them.

1.8 OTHER ABILITIES

Whether or not the psychological causes of everyday behavior are inherited is certainly important, but another relevant question is what *kind* of abilities should be considered essential. As will be seen in Chapters 5, 6, and 7, differential psychologists have tended to focus on abilities associated with school or university performance, such as verbal, mathematical, and logical abilities. Although one of psychology’s most compelling findings is that these apparently abstract and decontextualized abilities tend to predict performance on a wide range of tasks, in the last 20 years psychologists have devoted much attention to the identification of other, less academic, and more practical abilities.

Those who support the cause for the identification of novel intelligences tend to be critical of the meaning and usefulness of traditional ability measures such as IQ tests. Famous psychologists, such as Gardner (1983), Goleman (1995), and Sternberg (1997), have all authored bestselling books against IQ tests, putting forward alternative “abilities” instead (in fact, their fame is largely a result of this enterprise). Although evidence for the predictive power of IQ tests is irrefutable (see Chapters 5 and 6), the idea that *not only* academically able individuals have the potential to succeed in everyday settings seems to reflect the opinion of an increasing number of differential psychologists, and even more laypeople. A typical example representing these “anti-IQ” views is that of “geeks” or “nutty professors,” who are obviously intelligent in the traditional or academic sense of the word but appear to lack the necessary social

Table 1.2 A Comparison between traditional and novel conceptions of intelligence

Traditional intelligence (IQ)	Novel intelligences (Beyond IQ)
<p>Good at:</p> <ul style="list-style-type: none"> • Solving mathematical problems • Solving logical problems • Spatial ability tests • Expressing ideas verbally • School and university exams 	<p>Good at:</p> <ul style="list-style-type: none"> • Relating to others (social) • Managing emotions (emotional) • Knowing oneself (intrapersonal) • Everyday life problems (practical) • Gaining recognition (successful)

or emotional skills for behaving “intelligently” in everyday life (e.g., interacting with others, being on time, catching the right bus).

On the other hand, most people seem capable of quickly citing several examples proving that low-IQ individuals or those who did badly at school can be extremely successful in their professions or occupations. Sadly, these examples are often used to “console” individuals who have done poorly in school and carry implicit messages such as “don’t worry if your grades are terrible because *something else* is necessary to succeed in life.” While nobody would claim that IQ scores are the only indicator of a person’s potential for future achievement, the literature has shown that they *do* work rather well, suggesting that intelligence *does* matter.

Whether other abilities – such as the abilities to relate to people, manage emotions, control impulses, and make practical decisions – are more important is a challenging question. Unlike traditional abilities, which refer to problems that are well defined and have single correct answers (for instance, the capital of England is London and *only* London; the next number in the series 200, 400, 800 can *only* be 1600), novel abilities seem more reliant on subjective judgments and refer to ill-defined problems (see Table 1.2).

For example, “What should I do to make my boss like me?” is a question for which no correct answer can be identified, at least not for all possible scenarios. Thus, even if the ability to influence others is as important as the ability to solve mathematical problems, the question is how we can *measure* this ability and, having done so, whether it contributes to the prediction of performance *beyond* established IQ tests. These issues are discussed throughout Chapter 8.

1.9 VARIABILITY AND CHANGE: MOTIVATION AND MOOD STATES

consistent patterns of behavior those aspects of the individual that characterize the way they usually behave and make them different from others.

Although differential psychology is largely based on the study of **consistent patterns of behavior** – that is, those aspects of the individual that characterize the way they usually behave and make them different from others – it would be foolish to believe that people always behave in the same manner.

We are not robots or programmed computers who simply behave according to rigid, predetermined tendencies, and our responses to

situations and the way we react to different environmental stimuli (e.g., death of a friend, winning the lottery, listening to a “moving” song) may vary from time to time. Furthermore, even in the absence of salient events, our mood and motivation fluctuate, leading us to act in very different ways. Let us examine the following examples:

- You wake up with a hangover after a late (and expensive!) night out. You have a headache and plan to sleep late because it is your day off, but . . . your mother knocks on your door early in the morning to get you out of bed. Even if you are usually a kind, calm, and stable person, it is likely that you will behave in an aggressive and rude manner.
- You are usually talkative and friendly and enjoy meeting others . . . but your boyfriend has just told you he has been sleeping with your best friend. Although you feel upset and annoyed, it is your birthday party and you have to make an effort to be a good host. Will you be looking forward to chatting to friends and meeting new people?
- At school, the arts teacher shows pupils how to paint in the impressionist style; although none of the students has previously been trained in this technique, some may be more talented than others and pick up the method more rapidly. On the other hand, some students are also more enthusiastic than others, and seem to try harder, discontented with their performance until they match the high standards set by the teacher. Why are some pupils more enthusiastic than others, and does their motivation vary from time to time?

The above examples suggest that behavior can be affected by a number of factors other than psychological traits or abilities. While it is important that differential psychology clarify the major issues underlying differences *between* individuals, we must also consider variations *within* individuals, which will cause stable traits, and even abilities, to be poor predictors of behavior.

Thus you may be a pretty relaxed and friendly person but still lose your temper when annoyed or in a bad mood. Traits such as agreeableness and psychoticism (see Chapter 2) may inform us of a person’s typical level of aggressiveness but say little of their likelihood of reacting aggressively in a specific situation. Likewise, a person’s level of intelligence or ability to think logically may be a poor predictor of performance if that person’s motivation or level of effort is low. Figure 1.7 represents the relationship between stable traits and motivational and mood states as predictors of behavior. Whereas motivation and mood are influenced by trait variables, they are also affected by situational factors. Thus behavior is a consequence not only of internal disposition as personality characteristics, but also of situational factors.

In brief, personality traits are aggregated measures of behavioral tendencies and refer to “typical” performance, whereas ability tests measure “maximal” performance and thus indicate the best an individual can do (Cronbach, 1990/1949). Yet neither traits nor ability tests take into consideration the situational variables that affect an individual’s behavior. Even when you are taking an IQ test or a university exam, your performance may not reflect your “true” ability because you may be worried, anxious, or distracted by other thoughts. Likewise, the aggregated score represented by most personality traits will not explain and fully predict an individual’s behavior.

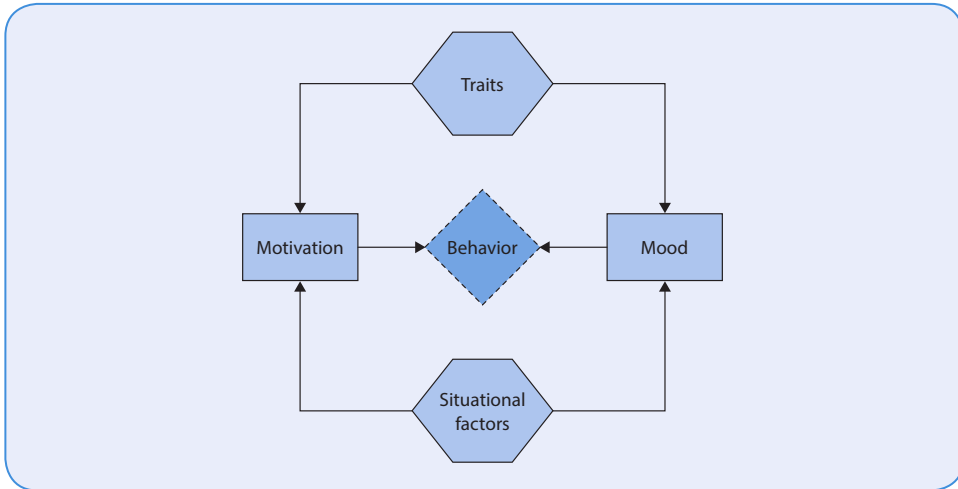


FIGURE 1.7 *Traits, motivation, mood, and situational factors*

It is therefore important to consider contextual factors when interpreting behavior, even if we are generally accurate at predicting people's behavior.

The effects of situational factors will be dealt with in Chapter 9, which is dedicated to the study of mood and motivation. Theories of motives, drive, and affect posit that, even though personality and intelligence are helpful in predicting individual difference outcomes, it is often necessary to interpret behavior at the state rather than trait level. Thus not every expression of behavior should be interpreted as a manifestation of a trait. Some behaviors are representative of traits while others are not, and personality is a general, not an absolute, disposition to act in specific ways.

1.10 CREATIVITY

The final chapters of this book deal with three constructs that have remained relatively unexplored in the history of individual differences, particularly in comparison with personality and abilities. These concepts are creativity, leadership, and interests and have a longstanding tradition in psychology, although they have also been considered to be outside individual difference research. Below, I anticipate some of the salient issues concerning individual differences in creativity.

It has often been suggested that creativity plays an important role in determining cultural and social landmarks. Why individuals feel the need to create and how they are able to do so are largely unaddressed questions. Thus differential psychologists have tried to understand:

- Why some individuals are more creative than others.
- How we can measure these differences.
- Whether it is possible to predict creative achievement.

Two assumptions are generally made regarding individual differences in creativity. The first is that creativity is different from intelligence, implying that people may be bright but not creative, or creative but not bright. The second is that creativity involves certain personality characteristics, such as nonconformity or eccentricity, and even psychopathological traits, such as schizotypic thinking (see Chapter 4). Thus it has often been pointed out that artists and geniuses tend to be psychologically disturbed in one way or another.

Methodologically, the measurement of individual differences in creativity has posed an ongoing problem for psychometricians. Given that creativity is defined primarily in terms of novel and original ideas, it is difficult to predetermine which responses are better than others, not least because of individual differences in ratings of creative products. When critics told Mozart that one of his piano sonatas had “too many notes,” the composer replied that it had “as many notes as it should.” While Mozart enjoyed some fame in his lifetime, the artist Vincent Van Gogh lived a poor, anonymous, and unsuccessful life, tortured by insanity and unable to deal with his contemporaries. Yet nobody today would think of telling Van Gogh that he should have added more water to his paint.

The examples of Mozart and Van Gogh – and there are many more, of course – show that creative outcomes, particularly within the arts, cannot be *objectively assessed* in the same way as cognitive performance or knowledge. On the other hand, personality alone is not sufficient to explain creative achievements. The fact that several leading creators lived eccentric lives and behaved in unusual or abnormal ways does not explain the quality of their work. Even if creative talent and “lunacy” may coexist, psychopathology does not cause exceptional creations. Besides, creativity should not be thought of merely as an artistic concept, but may also be related to scientific discoveries as well as everyday problem solving.

The relationship of personality and intelligence with creativity is complex. Leaving this relationship aside for a moment, and assuming that creativity is predominantly independent of other established individual difference constructs, the two salient approaches that have marked the scientific approach to creativity are **fluency** and **originality**. Fluency refers to the quantity of ideas or occurrences, while originality refers to the uniqueness of an idea or response compared to the responses of a larger group or norm. When combined, both concepts can be expected to give a fairly good indicator of creativity, as inventive or creative individuals tend to have *many* as well as *novel* ideas. A common test of creativity requires individuals to “name all the things they can do with” an object (e.g., a chair, stick, or pen) and computes both the total number of responses and the number of unique or original responses (see Figure 1.8 for an example).

fluency the ability to produce a large quantity of creative ideas.

originality whether an idea or response is unique.

To the extent that fluency and originality are related, we can hypothesize that having many ideas is a requirement for having new ideas. Thus, creative individuals are not suddenly surprised or inspired by the odd occasional idea but are permanently producing, examining, and applying ideas, and it is within the context of this “ideational storm” that great and original ideas are created. An apple falling on the head of Isaac Newton (1642–1727) may have inspired him to conceptualize the theory of gravity, but would only have caused a bump on most people’s heads.

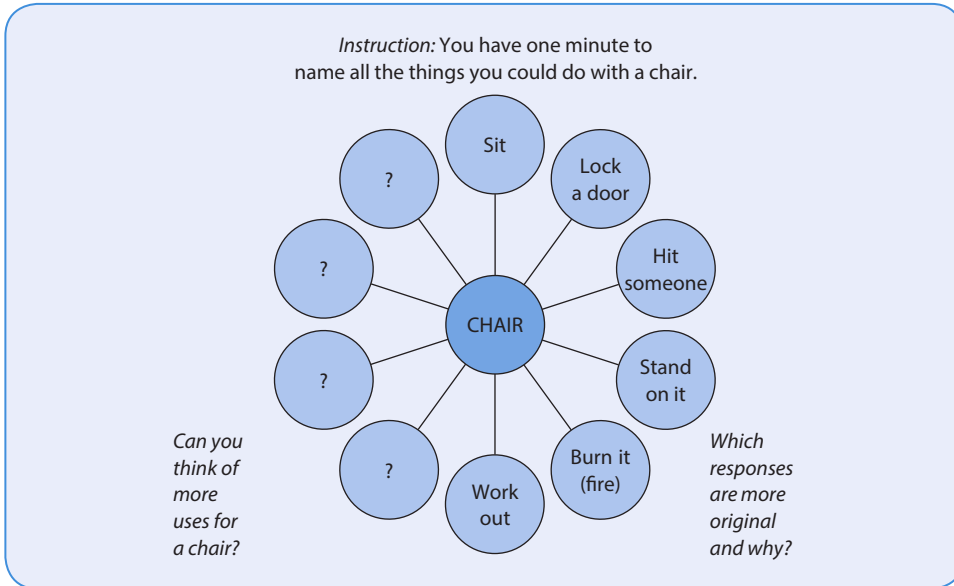


FIGURE 1.8 Fluency and originality as indicators of creativity or creative responses

1.11 LEADING THE WAY

Another topic that has been historically associated with individual differences is *leadership*, although leaders have been studied more frequently in social rather than in differential psychology, as well as in other social sciences such as politics, history, and economics. In recent years, differential psychologists seem to have rediscovered the construct of leadership and a variety of novel theories have emerged (see Figure 1.9).

Individual differences in leadership have been examined primarily in terms of leadership “emergence” (i.e., who becomes a leader and why) and “effectiveness” (i.e., who leads successfully and who does not). Because of its applied implications – leadership plays a role in economic, organizational, educational, and political contexts – there has been widespread historical interest in predicting the emergence and effectiveness of leaders. This begs the question of whether leadership is more dependent on personal than on situational variables; in other words, are leaders born or made? For example, some people may have leadership qualities within them but “miss” the historical opportunities or situational events to become leaders.

Another question is whether leadership may be dependent on specific domains, such that leaders may only be suitable to guide others in some activities (e.g., football tournament, peace march, achieving economic stability) but not others (e.g., scientific theory, political reform, artistic movement). On the other hand, some theorists have preferred to regard leadership as a *process of influence* and thus posit that there are no stable dispositions that are constitutive of leadership, but rather that there are simple relational paths between the leader and a group in a given situation.

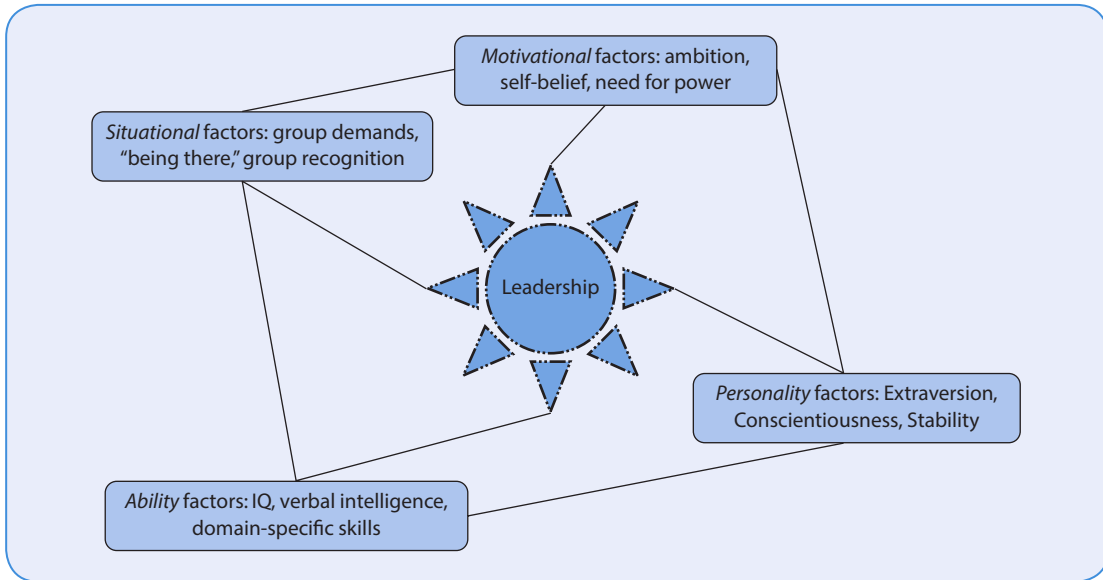


FIGURE 1.9 What explains leadership?

Traditional approaches to leadership have supported the historical view of leaders as *great men* (see Section 11.2.2 in Chapter 11), regarding them as individuals who stand out from the crowd because of their atypical personality attributes, beliefs, or skills. In that sense, leadership may be an outcome of other individual difference constructs. Whether individual difference research is able to predict leadership is questionable, as most studies consist of retrospective examinations of leadership in relation to other personality or ability measures. However, some longitudinal studies shed light on the importance of various psychological factors as determinants of leadership. As with many other areas of differential psychology, recent conceptualizations of leadership have attempted to bridge the gap between situational and personal factors in order to account for interactions between traits and contextual variables. In Chapter 11, a comprehensive review of leadership is presented, with the goal of addressing these and other central questions about leaders' personality, influence methods, and abilities.

1.12 INTERESTS

The final chapter of this book deals with individual differences in *interests*. This area of research attempts to explain vocational and career choices, often through a combination of ability and personality variables. Some have regarded interests as an essential aspect of individuals' personality because interests affect individuals' motivation, skills, and knowledge acquisition. Measures of interests are thus important to predict real-life outcomes, such as educational or occupation performance.

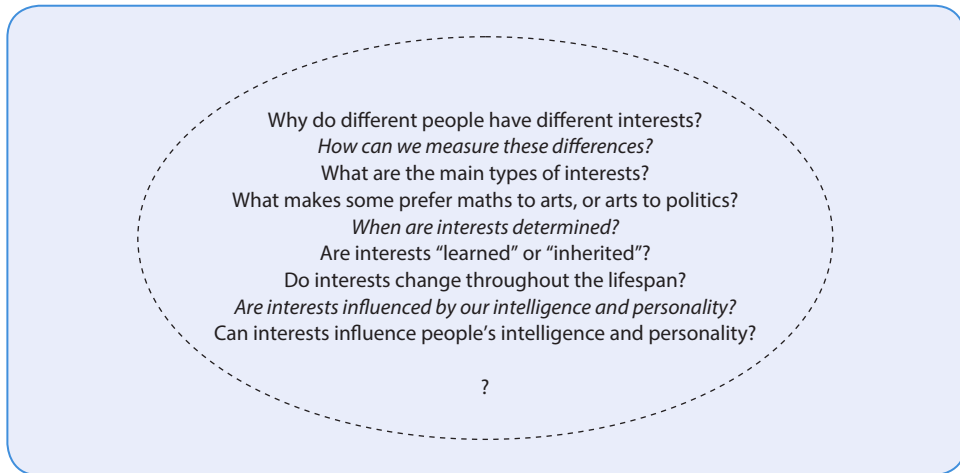


FIGURE 1.10 *Some questions regarding individual differences in interests*

One fundamental question concerns the stability of interests throughout the lifespan. Whereas an individual's level of interest seems to fluctuate from time to time (as explained by mood and motivation research), their type of interests remains relatively stable throughout the life course. Thus some people have scientific interests, such as math, chemistry, or biology, whereas others have humanistic interests, such as literature, fine arts, or music. Classifying interests is almost as complex as classifying personalities, and much psychometric research has attempted to identify the major categories underlying individual differences in interests (see Figure 1.10). Just as with leadership, recent theories of interests seem particularly promising with regard to integrating different areas of individual differences and putting them in context. Thus they provide a comprehensive and detailed picture of how situational and personal variables may converge to explain some of the most important aspects of individuality.