CHAPTER 1

COMPETENCE IN OCCUPATIONAL TESTING

Psychometric tests are powerful measures of human characteristics. Their results can alter the course of people's lives. Consequently, the sale of tests is restricted to people who can use them competently. This book aims to help practitioners develop a level of competence that qualifies them to purchase tests. No book can achieve this aim on its own. It must be accompanied by good tuition and practical exercises. It must attempt to mirror the requirements of professional bodies. The website associated with this book maps the contents on to the requirements of professional bodies such as the British Psychological Society. This book also aims to provide a source of reference on specific issues. Psychometric tests have four main uses: selection, vocational and careers advice, research, and workforce audits.

1.1 SELECTION

People differ. Some are intelligent, while others are slow-witted. Some are warm-hearted, while others are cold-blooded. Some are motivated by money, while others are motivated by ideas. Jobs differ too. Some require intelligent, warm-hearted people who are motivated by ideas. Others require slow-witted, cold-blooded people who are motivated by money. The task is to measure people's characteristics in some way, so that their characteristics can be matched to the requirements of the job.

Gains from good selection are widespread. *Candidates* gain because the best person is more likely to be hired. They also gain because fewer unsuitable people are appointed and go through the nightmare of failure and dismissal. *Colleagues* gain because they are spared the burden of coping with the mistakes of an incompetent co-worker. *Organizations* gain because they need fewer resources – as a general rule, good selection can increase productivity by 10% of labour costs. *Customers* gain because, other things being equal, they receive a better service at a lower cost. *Society* gains because increased productivity produces a sounder economy and tax base, which can support higher levels of 'social goods' such as hospitals and universities.

However, it is not easy to make good appointments. It has been known for almost a century that traditional interviews are very inaccurate. In 1929, Hollingsworth asked 12 sales managers, who were experienced in interviewing, to interview 57 applicants for a sales job and rank them in order of suitability. If interviews are any good, there should be some concordance in the rankings: a candidate ranked in the top ten by one interviewer should be in the top ten for other

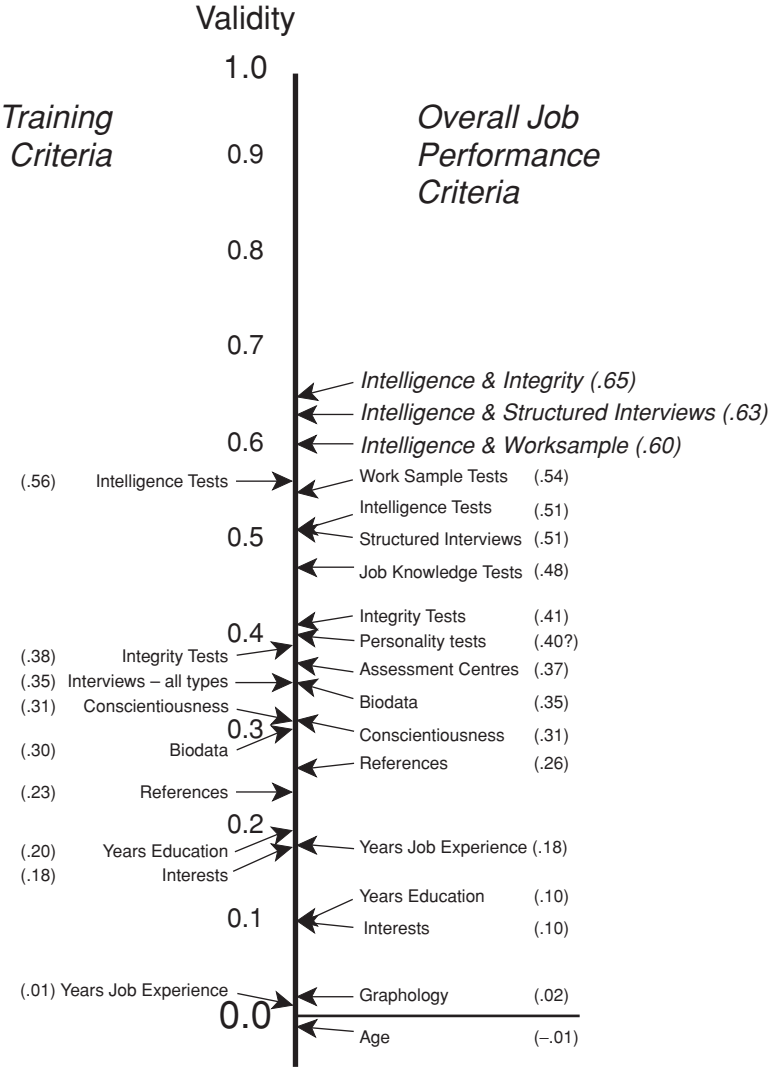

Figure 1.1 The accuracy of selection methods.

interviewers. Unfortunately, Hollingsworth's results showed that one candidate was ranked sixth by one interviewer and 56th by another. Subsequent analyses have suggested that the traditional interview is less than 3% better than chance.

Over the past 90 years, the accuracy of selection methods has been extensively researched. An important paper by Schmidt and Hunter (1998) collated many correlations between (i) different selection methods and success in training and (ii) different selection methods and success in the job. Robertson and Smith (2001) used this collation, together with other information, to produce figure 1.1. The figure shows that psychometric tests are among the best methods of predicting how well a candidate will cope with training and performing the job.

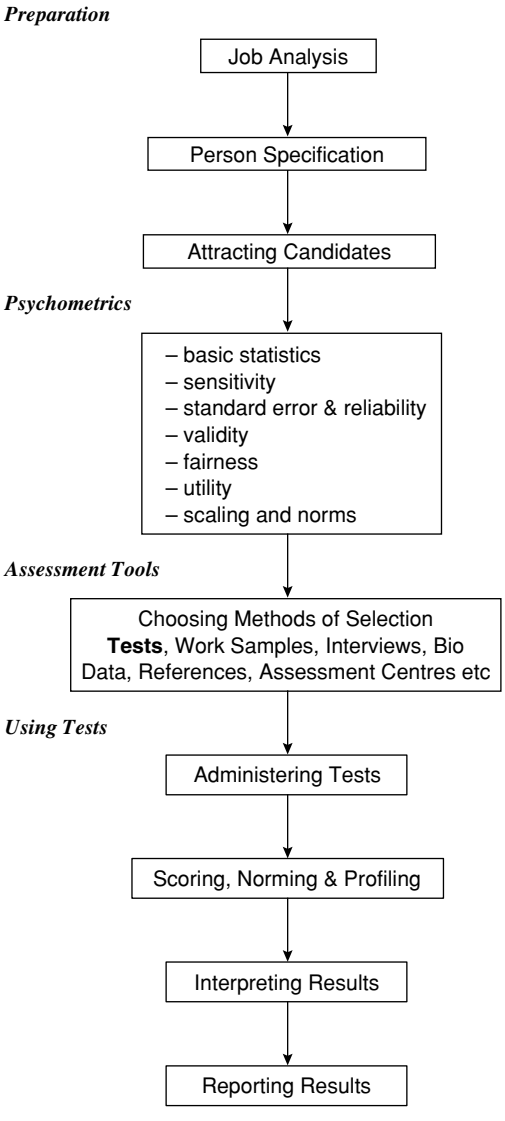

Figure 1.2 The selection paradigm.

Psychometric tests are one of the jewels in the crown of modern psychology. Few other areas of the subject have reached such an advanced, quantitative stage.

Nevertheless, on their own, tests do not result in accurate selection. They should be used, along with other scientific methods, in a systematic approach. This systematic, idealized approach is often called the 'selection paradigm'. It is rarely followed rigidly, but it provides a useful route-map for a selection system. This book is based upon the selection paradigm (see figure 1.2), and it deals with the topics in the chronological order in which they are depicted in the figure.

Good selection involves four major topics: preparation, psychometrics, assessment tools, and the use of tests. *Preparation* consists of analysing the job, drawing up a person specification of the abilities, personality and motives of the ideal person for the job, and then attracting applicants who seem likely to have these characteristics. These topics are covered in the first part of this book. Some methods of choosing among applicants are good, while others are bad. The difference between a good and a bad measure lies in the psychometric properties of the measures. Psychometrics, including basic statistics, is covered in the second part of the book. It is wrong to jump to the conclusion that tests should always be used to select people. Other assessment tools, such as work samples or situational interviews, may be just as good. Various assessment tools, including tests, computer tests and assessment centres, are described in the third part of this book. The final part focuses on the actual use of tests, including test administration, interpretation and feedback of results.

1.2 TESTS IN CAREERS GUIDANCE AND DEVELOPMENT

Tests are used very extensively in careers guidance and development. In selection, tests are used primarily to meet the aims of organizations. In careers guidance, they are primarily used to meet the need of individuals. In development, they are used to benefit both the organization and the individual. There are other, more subtle, differences. In careers guidance and development:

- A wider mix of tests is likely to be employed. Selection uses mainly tests of ability and personality. Vocational guidance will also utilize tests of ability and personality but may also use tests of interests and values.
- Testing sessions tend to be longer.
- Testing is usually done in smaller groups or on an individual basis.
- Feedback to test-takers is much more comprehensive.
- Testing usually takes place within a constellation of other activities, such as counselling, provision of information and coaching in skills such as writing CVs or interviewing.

Guidance is usually given at three points in a career. *First*, vocational guidance is often given at the point of *entry into work or training*. School-leavers, teenagers and people in their early twenties often have no strong idea of the career that they should follow. Tests are used to identify personal characteristics so that they can be matched with those required by various jobs. Test results at this age need to be interpreted with care. Whilst cognitive ability has stabilized, other aspects such as personality may still be in a state of development. Guidance at this stage often involves assessing vocational maturity and providing realistic information about the world of work. Vocational guidance at career entry is often financed by an educational authority, an employment service or by parents, and the resources available for each individual case may be meagre.

Second, career guidance may be provided as a part of a *personal development program* during an early career when people are in their late twenties or thirties. Testing at this stage is often limited to one or two tests of, say, personality and problem-solving style. Feedback is often rudimentary and consists of a profile plus explanatory leaflets. Guidance is often given in a group training context, which involves 'lectures' and sessions where a personal development plan is developed in co-operation with a course tutor.

Third, career guidance is frequently given in mid- or late career, when people are in their forties or fifties. It often forms a part of a *redundancy package* offered by employers. In these

circumstances, tests are used to assess the individual's suitability for future jobs. A major benefit of using tests at this stage is frequently to restore a person's self-confidence following redundancy. Guidance at this age may also follow a reappraisal of life goals. Perhaps the most frequent situation arises when people have chosen an initial career in a branch of finance because of the material rewards that it promised. By the time these individuals have reached their mid-forties, sufficient material rewards have been accumulated and they may seek a second career that will provide personal fulfilment. Tests may be used to identify jobs or other activities that are likely to provide this fulfilment. Testing at these stages is usually financed by relatively affluent organizations or individuals. It often forms a part of a Rolls-Royce service offered by an outplacement consultancy. However, tests are frequently used in less auspicious circumstances, for example during rehabilitation following serious illness or accident. In these situations, tests may be used to gauge whether or not someone is capable of performing certain 'new' occupations.

1.3 TESTS IN RESEARCH

Tests are frequently used in research. Research for many masters' dissertations and doctoral theses use tests, because tests are often the most scientific way of measuring the relevant variables. The research use of tests may be divided into three categories:

- *Research into tests* themselves. For example, many researchers have investigated fakeability, fairness, stability and age changes in test scores (see, for example, Warr et al., 2001).
- *Basic research* into other scientific phenomena – especially aspects of work psychology. For example, a test of cognitive ability might be used by an investigation into the relationship between solving industrial problems and intelligence. Similarly, a test of personality might be used to determine whether emotional intelligence is a new concept or merely a repackaging of traditional factors of personality. Further, a test of interests might be used in a study of job satisfaction. However, the use of tests in research is more widespread and it extends outside the arena of occupational psychology. For example, a test of cognitive ability might be used to examine the relationship between intelligence and the electrical activity in the brain (see, for example, Frearson and Eysenck, 1986). Similarly, a personality test might be used to examine whether extroverts are considered by others to be more innovative than introverts.
- *Applied research*, where, for example, a market research organization in the textile industry might examine whether extroverts are more likely to purchase garments that are coloured red or yellow. Similarly, a safety organization might use a personality questionnaire to discover whether tense people are more likely to cut themselves by resorting to knives to open difficult packaging.

Test results obtained in research settings are less likely to result in irreversible decisions that affect people's lives and fewer ethical issues are involved. Further, in research less precise tests can be used because the results of many individuals are aggregated. Mean scores of groups are much more stable than the scores of individuals, even when the actual test is less reliable. Unfortunately, the use of well-standardized tests in research is inhibited by two factors: money and distribution. Good tests cost money that research students and many research grants can ill afford. Furthermore, most research involves postal questionnaires, but the confidentiality of

test materials forbids their 'open' distribution by mail. Consequently, there is a great temptation for researchers to substitute naïve questions or homespun scales for proper tests.

1.4 TESTS IN WORKFORCE AUDITS

A more recent use of tests is workforce audits, where they are used to calibrate other aspects of an organization's human resource system such as an appraisal system. For example, a communications organization noticed that there were large differences in the grades given to employees in different regions. It was therefore suggested that quotas of grades should be imposed on regions and that managers in 'deviant' regions should be retrained to give more 'equal' grades. Before implementing this policy, the organization conducted a survey using standardized ability tests, which suggested that the appraisal grades were, in fact, a reflection of 'reality' and that the pools of ability varied from region to region. It therefore abandoned a programme that would have disadvantaged more able managers in some regions.

A second example of a workforce audit is given by a Manchester organization that was falling behind its rivals despite the fact that most of the senior employees that it was hiring had PhDs. The selection process involved tests of cognitive ability. It was arranged for senior employees to complete a personality test. When the scores were analysed, it was clear that the company was attracting and employing 'intelligent stodge'. When compared to national norms, the senior staff had achieved high scores on intelligence but low scores on imagination and willingness to try new ideas.

The chapters that follow will focus mainly on the common principles that affect all of the four main uses described above, but there will be special emphasis on their use in selection and guidance.