

Chapter

18

Industrial and organisational psychology

Michael P O'Driscoll and Paul J Taylor

Psychology Department
University of Waikato New
Zealand

Introduction

Industrial and organisational (I/O) psychology is concerned with people's work-related values, attitudes and behaviours, and how these are influenced by the conditions in which they work. I/O psychologists contribute to both the effectiveness of organisations (e.g. improving productivity) and the health and well-being of people working within organisations. The field is related to other disciplines, such as organisational behaviour and human resource management, and also has close links with other sub-disciplines within psychology, especially social psychology and some aspects of human experimental psychology (e.g. cognition).

A basic tenet of I/O psychology is that professional activities conducted by psychologists working in this field are based upon scientifically validated knowledge. This is referred to as the scientist-practitioner model, to indicate that there is an integral link between research and practice. Knowledge gained from empirical research is used to inform and develop practical applications, and the experiences and insights of practitioners contribute to research conducted.

As you will see in this chapter, there are two major 'branches' of I/O psychology: (a) organisational psychology and (b) personnel psychology. We will discuss each of these in turn, although it is important to recognise that there is considerable overlap between them. Although the conceptual frameworks, theories and practical applications used in New

Zealand frequently have been 'borrowed' from approaches developed in other countries, where applicable we will refer to research and practice that has been conducted within New Zealand. We conclude with a brief overview of the qualifications needed to become an I / O psychologist in this country. More information on the areas we summarise in this chapter can be found in other textbooks, such as O'Driscoll et al., (2003).

Organisational psychology

The 'organisational' branch of I/O psychology deals with a very wide array and diversity of topics. A common theme underlying these topics is the

attitudes and behaviours of individuals within the social environment of the work context. In recent times there has also been considerable interest in how work environments affect people's health and well-being. Here we summarise some of these major areas.

Work attitudes, motives and behaviours

Social psychology has illustrated that people's attitudes, values and motives have a major impact on how they behave, and the same applies in work situations. I / O psychologists have been especially interested in the effects of a person's work motivation, job satisfaction, and commitment to their organisation on outcomes such as work performance, absenteeism from the job, and thoughts about quitting (referred to as turnover intentions). There are complex interactions between these variables and the research findings are not entirely consistent. However, the expectancy theory of motivation (articulated by Vroom, 1964) suggests that high levels of work motivation are a driving force for a person to perform well in their job. If this job performance then leads to the individual getting rewards (such as a pay bonus, a promotion, or even social recognition from their manager), increased job satisfaction will result, in turn motivating the person to continue performing at a high level. Hence job satisfaction and job performance can be mutually reinforcing. Furthermore, high levels of job satisfaction have been associated with reduced absenteeism, tardiness and turnover intentions. Although there are of course many other factors that influence variables such as performance and turnover intentions, job satisfaction can make a contribution.

Another potentially important work-related attitude is organisational commitment, which refers to the sense of identity and attachment that people feel for their organisations. Put simply, the more committed individuals are, the more likely they are to remain in that organisation and to contribute to the organisation's productivity. Research in New Zealand by O'Driscoll and Randall (1999) illustrated that employees' level of job satisfaction and the extent to which they felt their organisation supported them were both associated with higher levels of organisational

commitment. Similarly, Randall and O'Driscoll (1997) observed that organisations wishing to foster high levels of organisational commitment should examine their reward and support systems, as well as their policies, to ensure that employee needs are being met.

Work design

Another topic which has attracted considerable attention in organisational psychology is the way in which jobs are designed, and whether job design affects people's attitudes and performance. Hackman and Oldham's (1976) *job characteristics model* (JCM) has been influential in shaping our thinking about how characteristics of a job affect individuals' motivation, performance and job satisfaction. According to this model, there are core job features which will influence three critical psychological states — meaningfulness (of the job), responsibility for work outcomes, and knowledge about one's performance on the job. These three psychological states in turn can produce high motivation, better performance and greater job satisfaction. Hence, designing jobs so that they give workers an appropriate level of variety, autonomy, feedback (on their job performance), as well as a sense of identification with their work and a feeling that their job has significance, will all lead to more-enriched jobs. Considerable research has supported the basic logic of the JCM.

Worker health and well-being

Recent legislation in New Zealand has given more emphasis to health and safety issues in work settings, and placed more responsibility on employers to ensure that the work environment is 'safe'. This includes not just physical, but also psychological, well-being. More specifically, occupational stress is now recognised as a work-related hazard.

There is considerable evidence, from here and other countries, that work stress is very costly for both individual workers and for their organisations (Cooper et al., 2001), and that it can have a very deleterious effect on individuals' job performance and their overall well-being. Acknowledging this, organisational psychologists (and others) have developed many interventions to deal with stress-

related problems. Unfortunately, however, the effectiveness of these interventions has not always been demonstrated.

One area that has received increasing attention in this regard is the extent to which people's job and their family life interfere with each other. This is sometimes referred to as 'work-family conflict', and has been consistently found to be linked with dissatisfaction (with both the job and family life), stress, as well as poor family functioning and even lower job performance. The Labour government's 'Work-Life Balance' project, initiated in 2003, reflects the growing political and societal concern with this issue, and again many initiatives have been developed to offset the negative consequences of excessive job-family conflict.

Personnel psychology

Psychological principles, theories and research are applied to many aspects of personnel/human resource management within organisations, and this aspect of psychology is referred to as *personnel psychology* (formerly referred to as 'industrial psychology'). Personnel psychology is largely concerned with the application of one of psychology's strengths to human resource management: the measurement of psychological 'constructs'. Constructs are concepts concerning individual characteristics, such as workers' mental ability or conscientiousness, and they are fundamental elements of many aspects of personnel/human resource management, such as job analysis, personnel selection, training and development, performance appraisal, and career development. Next we provide a brief overview of how psychology is applied to three of these important personnel/human resource management functions: job analysis, personnel selection, and personnel training and development.

Job analysis

Many personnel/ human resource functions rely on having an in-depth knowledge of the tasks that are performed within a given job, and the *knowledge, skills, abilities, and other characteristics* (abbreviated as 'KSAOs') that are required of individuals to perform the job effectively. For example, informed

personnel selection decisions require a comparison of candidates' KSAOs against the KSAOs required for successful performance on the job. In particular, these decisions should focus on those KSAOs that are not easily trained on the job, e.g. abilities and personality characteristics. Similarly, the development of training programmes for new staff requires an understanding of the KSAO requirements of the job, with particular emphasis on those KSAOs that can easily be trained once the person is hired,

The process of identifying job tasks and KSAO requirements is referred to as *job analysis*. A variety of job analysis methods has been developed by organisational psychologists, such as observational procedures, interviews and questionnaires administered to job incumbents (those who perform the job) and their supervisors. An example of job analysis information is provided by O*NET, short for the 'Occupational Information Network', one of the most ambitious job analysis projects undertaken in recent years. Developed by the US Department of Labor, O*NET provides a free, searchable database of information on nearly 1000 common jobs (see <http://online.onetcenter.org/>). O*NET data and materials, including job analysis questionnaires, have been intentionally placed in the public domain so organisations and researchers are able to use, customise, and research job information through the O*NET system.

Personnel selection

As managers recruit staff for job vacancies, they typically face multiple applicants for each job vacancy. Personnel selection decisions are among the most important decisions that managers make because staff comprise one of the most valuable assets of most organisations. Selection methods such as application forms, tests, interviews and reference checks are typically used to measure applicants against requisite KSAOs, in order to assist managers in making staff selection decisions. Of course, some managers fail to identify necessary KSAOs for a job prior to personnel selection, and may make staff selection decisions based on other considerations, such as how well they like applicants.

When KSAOs have been identified as important for personnel selection, they are referred to as *predictors* or *predictor constructs* because applicants

Example of an item from a job analysis questionnaire 1

Job analysis information is often collected through a standardised questionnaire. The following is an example of an item from the Occupational Information Network (O-NET) Skills questionnaire, which asks job incumbents to rate how important, and at what level, each of 35 basic skills are required to perform a particular job.

1 Reading comprehension Understanding written sentences and paragraphs in work-related documents

A How important is READING COMPREHENSION to the performance of your current job?

Not important*	Somewhat important	Important	Very important	Extremely important
1	2	3	4	5

* If you marked Not Important, skip LEVEL below and go on to the next skill.

B What level of READING COMPREHENSION is needed to perform your current job?

1	2	3	4	5	6	7
Lowest level	Read step-by-step instructions for completing a form		Read a memo from management describing new personnel policies		Read a scientific journal article describing surgical procedures	Highest level

can be assessed on those KSAOs in order to make predictions as to how effectively they would perform if hired. In order to determine how effectively these predictor constructs and their associated selection methods predict job performance, researchers typically compute a *correlation coefficient* between individuals' scores on the predictor measures with measures of job performance, such as performance appraisal ratings. Such a correlation coefficient is referred to as a *criterion-related validity coefficient* because it reflects the degree to which the predictor construct/ selection method validly predicts performance on a particular criterion – in this case, job performance.

Considerable research has been conducted during the past century about the criterion-related validity of various predictor constructs / selection methods. For example, mental ability tests, work sample tests and structured employment interviews are among the best predictors of job performance, while applicants' age, years of education and interests are among the weakest predictors (Schmidt & Hunter, 1998).

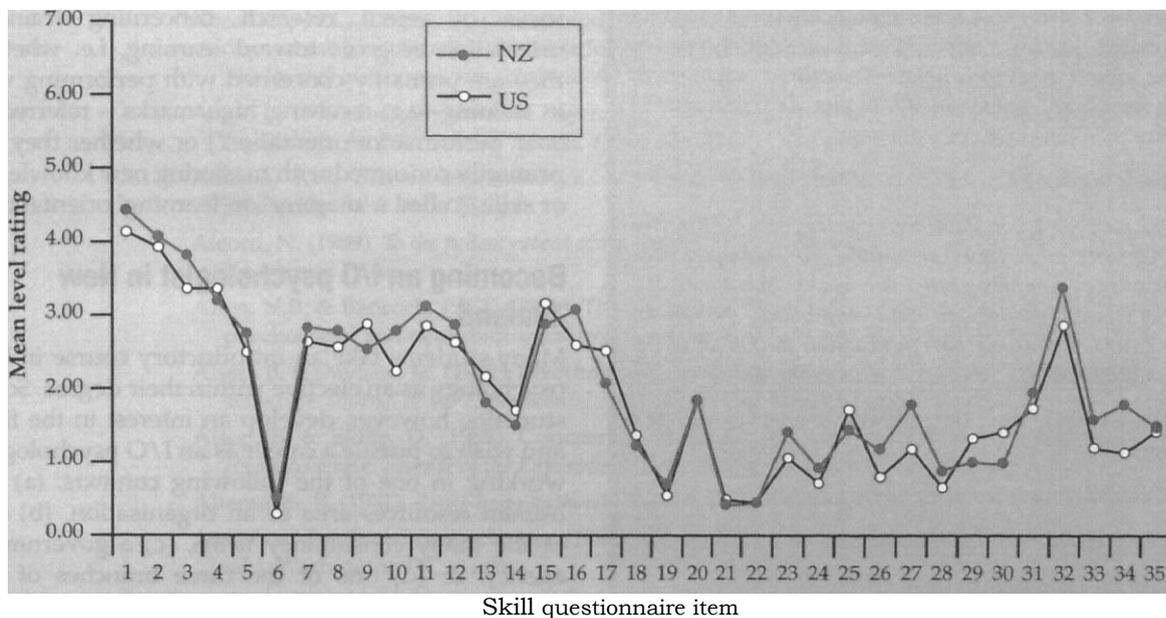
While criterion-related validity is an

consideration when choosing a staff selection method, it should not be the only consideration. Some selection methods are more costly than others to implement. For example, the use of work sample tests is typically more expensive than administering mental ability tests because the former must be developed for each job, while relatively inexpensive mental ability tests are readily available through occupational test distributors. Another consideration in choosing selection methods is the extent to which there are ethnic or gender test score differences, which may lead to lower proportions of an ethnic/ gender group being selected than another. For example, sizeable ethnic group differences have been found both overseas and in New Zealand for mental ability tests (Guenole et al., 2003), while substantially smaller ethnic group differences have been observed for personality constructs (Guenole & Chernyshenko, 2005) and structured employment interviews (Gibb & Taylor, 2003).

Finally, most organisations use multiple selection methods in personnel selection, which presents

Similarities in jobs performed in different countries

With the globalisation of business, and the growing availability of job information through the internet, it is important to understand the extent to which jobs performed in different countries are similar in terms of the activities performed and KSAO requirements. One of your chapter authors has been involved in a recent study comparing job activities and requirements across different countries, finding surprisingly high degrees of similarity (Taylor & Cable, 2004). For example, the following illustration compares mean incumbent ratings on the levels of 35 basic skills required for the job of 'office clerk: (New Zealand N = 45; USA N = 73).



Comparison of New Zealand and USA mean ratings of the required level of 35 different skills for the job of office clerk

challenges in both (a) choosing the optimal set of selection methods, and (b) in combining information from multiple selection methods to reach optimal selection decisions. The highest criterion-related validity from a combination of selection methods in a personnel selection system does not necessarily result from a set of selection methods that, individually, all have the highest criterion-related validity because there is often considerable overlap in the constructs that selection methods assess. In many cases, the best combination of selection methods is one in which different selection methods assess quite different aspects of job performance (e.g. a test of mental ability along with a measure of conscientiousness).

Training and development

Psychological principles and research methods have been applied to design and implementation of organisational training programmes as well as other non-training activities designed to develop the knowledge and skills of workers. For example, some organisations use 'developmental assessment centres' to identify newly-hired university graduates who have the potential to advance rapidly to senior management positions. Individuals attending a developmental assessment centre (called 'assesseees') participate in a variety of simulated work tasks (such as group discussions, presentations, 'in-tray' exercises) all under structured observation by psychologists and senior managers. The results

Example of a structured employment interview question

Typical employment interviews are unstructured, i.e. interview questions are not necessarily job-related, and interviewers make decisions about candidates without clearly defined criteria. Recently, psychologists have developed more structured approaches for conducting employment interviews. These approaches focus on asking job-related questions and apply answer scoring keys, as in the sample questions below. Structured employment interviews have substantially higher criterion-related validity than unstructured interviews.

Interview question for the job of office clerk:

For the past week you have been consistently getting the jobs that are most time consuming (for example, poor handwriting, complex statistical work). You know it's nobody's fault because you have been taking the jobs in priority order. You have just picked your fourth job of the day and it's another 'loser'. What would you do?

Answer scoring key (interviewer marks candidate's answer):

1 - *Thumb through the pile and take another job.*

3 - *Complain to the coordinator, but do the job.*

5 - *Take the job without complaining and do it.*

Source: Latham, G.P. & Saari, L.M., 1984

of these assessments, along with the results of psychological tests, are discussed with the assessee, and individual plans are established to address assessee's developmental needs.

A variety of psychological principles have been researched that can enhance learning in training programmes. For example, 'overlearning', which involves trainees practising a particular task well beyond the level of performance required on the job, is a technique that can be applied in training to improve retention of knowledge or skills over time. Particular training designs may not work equally well for all trainees, and researchers have studied psychological

characteristics of individuals (e.g. mental ability, anxiety) that may 'interact' with how training is designed (e.g. the degree of structure in training programmes). In many cases, they have found that particular types of training programmes work most effectively for particular trainees (e.g. less able and more anxious trainees perform better in highly structured training programmes). An interesting focus of recent research concerning trainees' orientation or goals toward learning, i.e. whether they are primarily concerned with performing well in training (e.g. receiving high marks — referred to as a 'performance orientation') or whether they are primarily concerned with mastering new knowledge or skills (called a 'mastery' or 'learning' orientation).

Becoming an I/O psychologist in New Zealand

Many students take an introductory course in I/O psychology as an elective within their degree. Some students, however, develop an interest in the field and wish to pursue a career as an I / O psychologist, working in one of the following contexts: (a) the human resources area of an organisation, (b) one of the many consultancy firms, (c) a government agency, or (d) one of the three branches of the New Zealand Defence Forces. Students wishing to become I/O psychologists in New Zealand must study the subject at post-graduate level. This typically means two to three years of study beyond a three-year Bachelors degree. Jobs in New Zealand, such as those in human resource management, consultancies, or in the New Zealand Defence Force, often state a Masters degree as a preference or requirement, although some accept students with an Honours degree. In order to become registered as a psychologist, and hence to be able to use the label 'psychologist', it is necessary to complete a Masters degree followed by one year of professional supervision. This post-Masters supervision can be obtained through a Postgraduate Diploma at university.