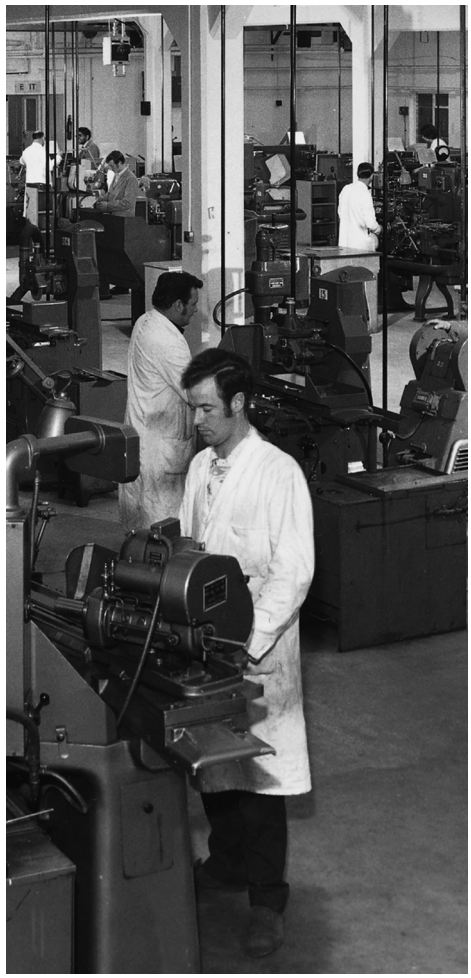
PART I

INTRODUCTION



Old type of labour. (J. Allan Cash)

CHAPTER ONE

HISTORY AND CONTEXT FOR WORK AND ORGANIZATIONAL PSYCHOLOGY

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Contents

Chapter Outline

This chapter aims to provide a context for reading about the areas of work and organizational psychology which follow. Two questions arise: what purpose does a context serve; and what kind of context should be provided? The book is an introduction; that is, it assumes no previous knowledge in any of the areas discussed. Thus, a possible contextual approach would be to outline simply the current scope of the field of work and organizational psychology, and comment on the methods used to gain knowledge in the field. However, this book has other ambitions, in that it aims not only to introduce the reader to the subject, but also to provide a thorough grounding in the topics discussed, enough to allow the reader to form a critical overview of the field. Thus the background to the field should be more than a simple description.

The purpose of the context here is to provide a richer appreciation of the knowledge and theories in the area. The context may therefore give a sense of why certain perspectives related in the body of the book are held to be important, why there are obvious gaps in knowledge, how the nature of research and knowledge is to be weighed and how the practice of work and organizational psychologists relates to research.

The kind of context provided is: first, to explore historical perspectives to account for why certain concerns lie within the field of work and organizational psychology; second, briefly to detail the ways in which knowledge is gained, and thereby what kind of knowledge is obtained; and, third, to provide an overview of what the field of work and organizational psychology consists of. Finally, a guide to using the book is given, which consists of brief introductions to the sections.

A Historical Perspective

An obvious starting place for anyone new to a field of inquiry is to ask what has already been done, by whom and why. In short, to explore the history of the subject. Of course, each chapter contains historical information, because each chapter draws on work done before, and summarizes current ideas in the light of past studies. Each chapter could therefore be viewed as a history of ideas relating to the particular topic area covered. Thus the historical perspective in this introductory chapter is of a different order. It is concerned more with the broad sweep of events.

A less often asked question is: what is the purpose of investigating history, what does it tell us that is useful? There are at least three possibilities in answer to this question. First, a study of history may point the way forward, to the

development of the subject, to the next 'big thing'. Second, history will account for where we have been, and thus may not need to go again. Third, a history can provide a sense of orientation in a subject; that is, allow oneself to locate and position oneself in relation to past events.

The first possibility, that of pointing the way forward, seems the most exciting, from both a research and a practical point of view. If, by an investigation of past events, the future of the discipline can be discerned, then funding for research can be spent wisely by targeting appropriately to maximum effect. Astute practitioners can gain a competitive edge by moving into what will become most important. Attractive as this possibility is, however, there are severe limits to what can be predicted in the future by the study of history.

The philosopher Karl Popper has detailed an argument which proposes that, in principle, it is not possible to know the future through a study of the past. His argument is that 'the course of human history is strongly influenced by the growth of human knowledge. . . . We cannot predict rationally or scientifically, the future growth of our scientific knowledge. We cannot, therefore, predict the future course of human history. This means that we must reject the possibility of a theoretical history. . . . There can be no scientific theory of historical development serving as a basis for historical prediction' (Popper, 1991, pp. vi–vii).

Of course, future developments are not totally unconstrained. What happens in the future is a function of the present, and in turn the present is a function of the past. In most cases there is a statistical connection between the present and the future; that is, certain developments are more likely than others. This is particularly true over short timescales. However, what Popper was implying is that the precise direction of future events is uncertain, and that discoveries themselves have an impact on the political and social context within which research and hence a discipline proceeds, influencing its development. This is nowhere more evident than in those periods in a discipline marked by changes in the mindset or 'world view' surrounding knowledge, discussed by Kuhn (1962). Kuhn argued that science proceeds through periodic paradigm shifts, which have the effect of changing the way we think about events, and what we consider important to observe and theorize about. The change, which took place in the 1950s, in the dominant paradigm from behaviourism to information processing in psychology is an example. A shift to new ways of working could bring about a similar paradigmatic reorientation in work and organizational psychology.

In these circumstances, it seems to me, the most important contribution an introductory chapter can make is to provide a sense of orientation with respect to past events, an opportunity to locate and position oneself to some degree, rather than a historical critique or evaluation of past ideas, or a detailed reconstruction of the political, social and economic conditions leading to particular pieces of research. The latter two approaches would consume a book in

themselves, and as matter of course some of the history behind currently held ideas is discussed in the chapters in this book. The question then is what should be discussed in a general historical overview, and why.

Several ways of organizing past ideas and studies present themselves, and one general approach is to list the ways, and provide an account from different perspectives. Furnham (1998) has done just this, and his classes include the 'models of man' perspective, the 'great thinker' perspective, the 'time-based' perspective, the 'school of thought' perspective, the 'seminal study' approach, the 'textbook content-analysis' approach and a topic-based historical approach. Each perspective is, of course, problematic in terms of what to include, how the material is to be organized and why. Brock (1998) laments the lack of proper historical research into psychology. One telling point he makes is that there is little reflection on the subjective nature of historical accounts, which frequently simply pass on received wisdom. Taking an 'inclusive list' stance does have its uses, however. At a minimum it gives a sense of what can be done with historical observations. Set against the benefits is the possibility that being inclusive may delude readers into thinking that they have a complete overview of the historical background. In terms of the old Hindu proverb about the blind men and the elephant, the reader could end up with a nose, a leg, a tail and a skin, but no animal. An inclusive account may be so all-encompassing that it does not give a strong sense of place and orientation.

Popper (1991, p. 150) argues there can be no history without a selective point of view, unless 'it is to be choked by a flood of poor and unrelated material'. Furthermore, he proposes that the selective point of view be preconceived; 'that is to write that history which interests us'.

Hollway (1991), for example, provides a historical and thought provoking critique of dominant ways of viewing the person at work. Her historical perspective is motivated by considering how work and organizational psychologists intervene in the workplace. Broadly, interventions focused on the individual level at the beginning of the twentieth century, the social level around the middle of the century and now the organizational level. Hollway characterizes the first two phases by titling the parts of her book that refer to them as 'Factory hands' and 'The sentimental worker' respectively. The essence behind this structure is to emphasize the critical touchstone she uses throughout her book, that knowledge is not produced in a vacuum, but is a product of power and practice, and that much of work and organizational psychology has been developed from the perspective of managers. She bases her analysis on the understanding of the relationship between power, knowledge and practice developed by Michel Foucault.

It is, none the less, a matter of empirical observation that interventions at all levels take place today, but the way of thinking about the person at work has been marked by a progressive acceptance that psychology and behaviour at work cannot be understood only in terms of the individual, but must refer to the work and organizational context. The present book is produced with this in mind, and case studies are used to provide contextual richness.

Another way of providing a historical account is to refer to documents and personal recollections, filtered through the experience of the author or authors. Shimmin and Wallis (1994) have produced an account of work and organizational psychology from their own involvement in post-war British practice, relying on their own experiences, documentary research and personal knowledge of many of the figures involved. The book provides a rich source of information for the reader, as well as an engaging account of the times.

My point of view, for the purposes of this introduction, is to outline briefly the effects of the industrial revolution as they impacted on work, to give a sense of location by placing in time some events at the start of work and organizational psychology, and then to discuss those historical *zeitgeists* which continue to be referred to today.

The industrial revolution

The industrial revolution started in Great Britain in the eighteenth century. Its effects can be summed up under two headings: the social and economic reordering of society; and technological invention using harnessed power. Before the industrial revolution there were no big manufacturing towns, the social unit was still the village and most families owned some means to make a living: land, or the right of common pasture, or simple wooden machines. Coal, where available, was for domestic use, and aside from a primitive steam pump, the only sources of power were wind and water (Halliday, 1995).

The late eighteenth century saw huge improvements in agriculture through the application of scientific farming, producing vast increases in food production. The improvements were a result of land enclosures for arable farming, with the effect of wealthy landowners buying out small holdings, and depriving cottagers of their rights to common pasture. A landless labourer class was created. Cotton and wool production was transformed. In 1769, Arkwright patented the spinning machine, which could do the work of 12 women, and was driven by water power. The power loom was invented by Cartwright in 1785, and perfected some 30 years later. Weavers became factory employees (Halliday, 1995).

The industrial revolution brought about dramatic changes in the way society and work were organized in the UK. Halliday (1995, p. 158) reports that after 1780 large-scale production of food and manufactured goods 'began rapidly to supersede inefficient small-scale farming and the domestic system, dislocating the old way of life'. At a global, and necessarily simplified, level, the industrial revolution brought about a society ordered by work imperatives. The change to an economy dominated by factory production and urbanization neccesitated constant effort in pursuit of production, and the development of large manufacturing towns such as Manchester (Messinger, 1985).

The history of technology at work since the industrial revolution can be divided into three phases: power provision; automation of function; and information and control of process.

Traditional manufacturing technology most often was an aid to work, especially physical work. Thus steam was harnessed for power and used to drive weaving machinery for example. The machines were still controlled by people. Second, machinery became sufficiently sophisticated to automate some functions performed previously by people. Third, the change from traditional to computerized technologies in the recent past has involved the extensive use of computers to control technology.

McLoughlin and Clark (1994) outline a slightly different set of three phases in manufacturing automation: primary mechanization, which was the use of water or steam power to replace human physical and manual labour in the transformation of raw materials into products; secondary mechanization, which used electricity, and facilitated continuous flow assembly lines and processes; and tertiary mechanisation, which used electronics-based computing and information technologies to coordinate and control production tasks. McLoughlin and Clark report that primary mechanisation was predominant up to the end of the nineteenth century, and that since 1945 tertiary mechanization has assumed increasing importance.

Britain led the way to industrialisation, and for most of the nineteenth century reaped the economic benefits of being first. By the turn of the century, however, both the USA and Germany began to overhaul the UK.

Dates, topics and institutions

Landy (1997, p. 467) suggests that 'Industrial and Organizational Psychology was peculiarly American in its inception', and its early history concentrated on individual differences. A key book, *Psychology and Industrial Efficiency*, was published in an English edition in 1913 by Munsterberg, one of the pioneers in American industrial and organizational psychology. The American Psychological Association (APA) was formed in 1892, but it was not until 1945 that it created a division for industrial and business psychology.

Katzell and Austin (1992) detail the development and use of psychological testing by the US Army. In 1919 one of those involved in the army work, Walter Dill Scott, formed an consultancy called The Scott Company, whose psychological techniques included a group test of mental ability, job standards for career progression and personnel planning, a performance rating system, oral trade tests and apprentice training materials, and a programme of personnel administration. Another US consulting organization founded after the First World War was The Psychological Corporation, organized in 1921.

By the 1930s in the USA there were several universities and colleges offering training in industrial and organizational psychology, and during 1937–8 the American Association for Applied Psychology (AAAP) came into being, and included an industrial and business psychology section. By 1943, 79 people had joined the section. The APA merged with the AAAP after the Second World War, creating a division of business and industrial psychology

(division 14). In 1960, it was estimated that 756 psychologists were members of division 14, approximately 25 per cent of whom were academics. In 1970, division 14 was renamed the Division of Industrial and Organizational Psychology, and by 1980 had 2005 members. Divison 14 was incorporated as the Society for Industrial and Organizational Psychology (SIOP) in 1983, and boasted approximately 2500 members in the early 1990s.

In terms of the topics studied, Katzell and Austin (1992) organize their review in time periods. The First World War and the 1920s saw army selection techniques develop, a unit charged with facilitating the adjustment of soldiers to army life, work sample tests, person and job analysis concepts emerge, the measurement of vocational interests and the measurement of work performance. In the 1930s to the Second Word War the study of employee attitudes and morale developed, and leadership and group dynamics was investigated. During and after the Second World War to the 1960s, selection, assessment, performance appraisal and training were major areas, and organizational factors began to be investigated with increasing vigour, notably in relation to the satisfaction and well-being of workers. Some investigation of labour relations was carried out in this period, including conditions associated with cooperation and conflict between unions and management. Katzell and Austin (1992) note the emergence of a separate discipline of applied experimental and engineering psychology (division 21 of the APA), embracing biology, engineering, systems analysis and computer science, as well as psychology. From the mid-1960s to the mid-1980s job analysis and selection tests received considerable attention in terms of validity and fairness. Work motivation and job attitudes also attracted interest, as did the scope or challenge of the job. Behaviourist and cognitive approaches were also seen to gain ground in this period. The shift to organizational issues continued, with communication, conflict management and organizational socialization forming some of the topics investigated. Katzell and Austin (1992) summarize the period from the mid-1980s to the early 1990s as characterized by the methodological and conceptual refinement of previous work, while noting the developing interest in mood and affective states on work attitudes, the interest in organizational culture and the burgeoning of the cognitive movement in industrial and organizational psychology, mentioning, for example, the merging of psychometric and cognitive conceptions of ability.

In Britain the First World War had produced studies, begun in 1915 under the auspices of the Health of Munitions Workers Committee, investigating industrial fatigue and factors affecting the personal health and efficiency of workers in munitions factories. The Industrial Fatigue Research Board, later renamed the Industrial Health Research Board (IHRB), was set up in 1918 to continue the work. Subsequently, responsibility for the IHRB was assumed by the Medical Research Council. In 1921 the National Institute of Industrial Psychology (NIIP) was established to 'promote and encourage the practical application of the sciences of psychology and physiology to commerce and

industry by any means that may be found practicable' (Shimmin and Wallis, 1994). Shimmin and Wallis report that by 1922, when Morris Viteles, and American industrial and organizational psychologist, visited Europe he noted that industrial psychology in both England and Germany was expanding at a rapid rate and was more extensive in its scope than in the USA.

In the 1930s the Industrial Health Research Board reports included topics under headings such as hours of work, rest pauses, dexterity, industrial accidents, atmospheric conditions, vision and lighting, vocational guidance and selection, time and movement study, methods of work and posture and physique, plus miscellaneous topics such as the psychological effects of noise and toxicity of organic solvents. The National Institute of Industrial Psychology had become the focus for work on job analysis, psychological testing, interviewing, vocational guidance and personnel selection.

During the war years, 1939 to 1945, military selection procedures were considerably revamped, and War Office Selection Boards set up. These boards were considered a great success, and became the basis for subsequent Civil Service Selection Boards. The Cambridge Psychological Laboratory, with backing from the Medical Research Council (MRC), began investigating aspects of human performance related to 'gun-laying, radar surveillance and piloting aircraft' (Shimmin and Wallis, 1994). Key concerns included the effects of fatigue on pilot skill, and the effects on vigilance of a number of factors including 'time on watch'. The MRC Applied Psychology Unit was set up in Cambridge in 1944, under the directorship of Kenneth Craik.

After the war a Committee on Industrial Productivity was set up by the UK government. There were four panels; the Human Factors panel was most important for occupational psychology, and acted as a facilitator of research. The panel noted the lack of good scientific knowledge and trained researchers (Shimmin and Wallis, 1994). Topics the panel had an interest in included: the human side of technological change, and communications in industry, examined by the Tavistock Institute, itself established in 1946; the effects of age on human skill; company morale; and employee–management relations.

In 1950 a new 'Psychologist Class' was established in the Civil Service, attracting about 40 graduates. Topics investigated included assessment methods for selection, training and human factors generally. During the 1960s and 1970s occupational guidance was developed for school-leavers and adults. A postgraduate diploma in occupational psychology was begun in 1951, and the first department of occupational psychology in Britain was set up in 1961. In 1968 the MRC established the Social and Applied Psychology Unit in Sheffield, with work motivation and job satisfaction as early investigations. Shimmin and Wallis (1994) summarize the 1960s as containing work in the areas of personnel selection, vocational guidance, ergonomics, vocational training and, importantly, the newly emerging organizational psychology.

Shimmin and Wallis (1994) pick out several areas for comment as indicative of dominant activity between the 1970s and the 1990s: personnel selec-

tion; job satisfaction; design of work; the quality of working life; occupational stress; stress management; unemployment; absence and accidents; unfair discrimination; training; and occupational guidance and counselling. They note that the British Psychological Society formed a Division of Occupational Psychology in 1971 (of which more below) with 131 members. The membership was 241 in 1980, and 661 in 1993.

Zeitgeist studies

One of the most dominant approaches to the way jobs should be viewed was the philosophy of 'scientific management' espoused by Frederick W. Taylor around the beginning of the twentieth century (1911). Taylor was first a labourer, working up to become maintenance chief engineer at the Midvale Steel Company, USA (van de Water, 1997). He was not a psychologist by training (not many people were then), having gained a mechanical engineering degree. His first published paper was on a piece-rate system, and appeared in 1895. His views were founded on the premise that people are motivated primarily by economic factors, and hence hard work should be linked to pay. He argued that work should be standardized on the most efficient way of doing it, and 'time and motion' studies of metal cutting were carried out to establish this. Thereafter workers were paid on a piecework basis. In other words, so much pay for so much work. The approach of scientific management demanded that the knowledge and skills needed to carry out production processes became vested in management. Shopfloor workers were then told how, when and in how much time they should carry out tasks assigned to them. Supervisors became very important in the system.

A second major influence on how work should be seen came from studies done at the Hawthorne plant of the Western Electrical Company in the USA, from about 1924 to 1932. The researchers demonstrated that social relations at work, and not just economic self-interest, were important for productivity. In one set of observations a small number of women workers were transferred from their usual work area to a separate test area. There the workers experienced a series of controlled changes to their conditions of work, such as hours of work, rest pauses and provision of refreshments. During the changes the observer maintained a friendly manner, consulting with the workers, listening to their complaints and keeping them informed of the experiment. Following all but one of the changes there was a continuous increase in production. The researchers formed the conclusion that the interest shown in the workers, and the additional attention given to them, was the principal reason for the higher productivity. Another set of observations involved a group of men. It was noted that the men developed their own informal pattern of social relations and 'norms' for working behaviour. Despite a financial incentive scheme which offered more money for more productivity, the group chose a level of output well below what they were capable of producing.

Despite the dominance of the two approaches above, Taylorism and human relations, there are those who feel that the British contribution to the early development of work and organizational psychology, what could be called 'human factors', is considerable, and potentially more valuable than either (Rose, 1975).

Research in Occupational Psychology

Although much of the work of work and organizational psychologists is practical in nature, the strength of their advice is based on knowledge acquired systematically, through scientific means where possible. Thus research into behaviour at work plays an extremely important part in informing professional practice, as well as in developing more fundamental theories of the psychology of people at work, and how this is influenced by the context of work organizations.

There are two traditional types of ways to gather knowledge about work: the experiment and the correlational study, explained below. Recently, other ways, such as case studies, have also become more accepted (see Robson, 1993, for a detailed discussion). Within these three main approaches a variety of information gathering techniques and analyses can be deployed, ranging from interviews and questionnaires on the one hand, to behavioural observation on the other. Some techniques fit better within some approaches than others, though. Thus, the case study approach often goes with interviews, whereas there are difficulties in using interview data in an experimental analysis.

Experiments, whether in the laboratory or the field, allow inferences to be made about causality between the variables studied, whereas correlational studies only observe whether factors change alongside others, but causality cannot be inferred. Case studies provide a very rich picture of a particular work setting, but the picture may not generalize to other settings. Occupational psychologists are often limited to observing natural variation and change within organizations and work settings, and hence experimentation is difficult. Many studies tend to be correlational in nature. However, despite the constraints of the work environment, some field experimentation is possible and fruitful.

Field experimentation has the same procedures as laboratory-based methods, and tries to follow them as closely as possible. Thus, the experiment involves forming a hypothesis, selecting experimental and control groups, introducing an experimental manipulation, measuring the change and making inferences as to causality. However, it may not always be possible to achieve the ideal experimental constraints in the field. Thus control and experimental groups may not be randomly determined, and other factors may alter along with the experimental manipulation.

The advantage of the field experiment over a laboratory-based one is that the real-life conditions of the work setting can be preserved, in contrast to the artificial environment of the laboratory. For some investigations this is crucial, for others it is not, and the laboratory is the best place to produce the knowledge required. In addition to deliberately changing workplace factors to investigate their effect, experimenters can take advantage of naturally occurring change, especially when there is no control over the workplace, or it is undesirable. Here quasi-experimental methods are used to set up comparison groups, measure them before any change, measure them after the natural change and analyse the results and draw causal inferences as appropriate. Often other factors also change in addition to the factor(s) of interest, and the effects of these need to be taken into account.

The experimental approach has the advantage of allowing causal inferences between variables to be drawn. However, it is often the case that such experimentation is difficult to achieve in the field, and the artificial environment of the laboratory is an impediment to finding satisfactory connections between work-related variables. Under these circumstances the correlational study comes into its own.

Correlational studies concentrate on examining what factors change together, without making any inferences as to the causal nature of the relationships. Thus manipulation and control of variables are not as important, and natural variation in the workplace is central. What matters is the degree of relationship (the correlation) between factors, and its direction; that is, whether both factors increase together (a positive correlation) or whether one factor decreases as the other increases (a negative correlation). A fictitious example would be whether people who work longer hours feel less alert, but more satisfied with their work. In this case the length of the working day would correlate negatively with alertness (as the length increases, alertness decreases) but positively with satisfaction (as length increases satisfaction also increases).

Finally, case studies look at individuals or small groups of people at work. Focusing on a small number of people, or a small company, provides an opportunity to look at the group in depth, and over a period of time. Case studies are most useful in an exploratory context. The case study provides for studying a situation in depth, and from a variety of angles, through interviews, observations and the analysis of documentation. However, a case study does not allow statistical generalisation.

The usefulness of any of these approaches to understanding psychology at work can be greatly enhanced if the results from one work situation can be generalized to others. In order to generalize successfully certain conditions need to be met. The key factor is representativeness. First, if a particular finding is to generalize beyond the people involved in a study, the people studied must be representative of the larger population to which generalizations are to be made. Second, the context of a study should not constrain generalizability by

findings being specific to it, or to the people studied. A fictitious example of a non-generalizable context might be workgroups studied on the shopfloor. A study of such groups could suggest that certain personality aspects are important to successful team-working. However, a group of office managers might work well together, but exhibit completely different personality profiles. Successful team-working attributes do not generalize across workgroups in this hypothetical example.

Contexts for research knowledge

Work and organizational psychology is an applied discipline. Thus the issues which commonly arise are connected with how and why workers behave as they do. Companies, on the whole, want to know the answers to these questions in order to improve productivity, although they may have an interest in how satisfied their employees are. Academics, while possibly being concerned with productivity, are concerned to understand the fundamental aspects of human nature at work. Consultants are asked to give advice to companies and industry, usually on a case by case basis.

The relationship between academics, consultants and work organizations influences the type of questions, and thus the type of research that is done. Psychologists with an interest in work-related issues can adopt different roles in relation to the organizations and work culture they study. A broad division is whether the psychologist works within, and is employed by, the organization, or whether he or she is an outsider. The psychologist could be motivated by an academic concern with theory, or by a desire to give consultancy on best practice. In most situations, though, the ability to do research or provide consultancy is heavily dependent on the cooperation of work organizations.

Some critiques of the development of knowledge in work and organizational psychology therefore argue that the relationship between power, knowledge and practice should be made explicit. Hollway (1991, p. 7) laments: 'There is virtually no debate about the status of the knowledge which makes up work psychology and this state of affairs is the result of the uncritical identification of work psychology with behavioural science, which in turn identifies with natural science.' Her view is that science 'prescibes that the knowledge gained through scientific methods is unproblematically true and that scientists are potentially neutral agents in the process', and further that science assumes 'such knowledge would necessarily be progressive'.

She argues that knowledge in work and organizational psychology cannot be separated from its effects, and should be understood, in contrast to a 'scientific' view, from the perspective of the social and political conditions producing that knowledge. She gives the example of the concept of job satisfaction, arguing that '[it] would have been an unthinkable concept in a feudal regime, where tied workers had few means of opposing the power of landowners and monarch. Neither was it produced in the context of pre-industrial,

self-employed craft workers whose control over work was a condition of their existence' (p. 8). Hollway uses ideas on the production of knowledge advanced by Michel Foucault to give a historical reading of the development of work and organizational psychology.

However, the position Hollway advances concerning science, while providing a starting point for a thought-provoking analysis, is something of a straw man. It is doubtful that many scientists would hold that scientific knowledge is anything more than provisional since the work of the highly regarded and influential philospher of science, Karl Popper (for example, *Conjectures and Refutations*, published in 1963). Popper presented compelling logical arguments that theories should be testable in principle to be counted as scientific. This implies that all scientific theories could be found to be false at some point, if not now.

None the less Kuhn (1962, p. 4) recognized that:

> Observation and experience can and must drastically restrict the range of admissable scientific belief, else there would be no science. But they cannot alone determine a particular body of such belief. An apparently arbitary element, compounded of personal and historical accident, is always a formative ingredient of the beliefs espoused by a given scientific community at a given time.

Further in relation to the 'neutrality' of scientific knowledge, Popper also published a critique of science, and in particular the social sciences, arguing that science itself was a social institution, and therefore knowledge produced by its practice was necessarily influenced by politics, social considerations, economics and the particular interests and experiences of the scientists involved (Popper, 1991).

However, the points made by Kuhn and Popper do not imply that science is simply another way of 'reading' or interpreting a set of observations, in the way 'historicism' is. The touchstone for scientific theories is testability, not fecundity. Medawar (1969, p. 59) summed it up eloquently:

> The purpose of scientific enquiry is not to compile an inventory of factual information, nor to build a totalitarian world picture of natural Laws in which every event that is not compulsory is forbidden. We should think of it rather as a logically articulated structure of justifiable beliefs about nature. It begins as a story about a Possible World – a story which we invent and criticize and modify as we go along, so that it ends by being, as nearly as we can make it, a story about real life.

Psychological research in the workplace

The kinds of psychological topics researched in the workplace are influenced to some degree by at least two large concerns: the needs of the workplace; and the person(s) giving permission for research access to the workplace.

Work organizations have purposes different from those of psychologists, although their interests may overlap. Work organizations exist to fulfil their aims and objectives. In the manufacturing industry sector these objectives could include the production of a quality product at minimum cost. In the public sector the aim could be the provision of a diversity of services within existing resources. Organizations are usually under pressure, commercial and/or political, to achieve their aims. Psychologists, on the other hand, are trying to understand people at work, and base advice on this understanding. However, psychologists research, and advise, dynamic, changing organizations subject to the pressures just outlined. It is, therefore, difficult for psychologists not to be influenced by the pressures organizations are under. Such influence can, and often does, determine the kinds of research psychologists do, and the sort of advice it is possible to give.

The persons giving permission to do research in the workplace are often at managerial level within the work organization. Indeed, Hollway (1991) asserts that managers are the largest group who use work and organizational psychology, a conclusion supported by an assessment of the impact of industrial-organizational psychology in the USA (Katzell and Austin, 1992).

The issues management may be concerned about could differ markedly from the concerns on the 'shopfloor' or lower down the organizational hierarchy. An example of the foregoing is that often it is the managers who want to know the best way to select a person for a particular job, or who want to know the best way of organizing work teams in order to get maximum work efficiency. Stress at work, or job dissatisfaction, may only be important in so far as it stops workers carrying out their jobs efficiently, rather than as an end in itself. Performance at work is a very prominent theme in work psychology.

An Overview of Work and Organizational Psychology

A European perspective

The European Network of Organizational and Work Psychologists (ENOP) has produced a reference model for a European curriculum in work and organizational psychology, designed to serve as a common frame of reference for the training of work and organizational psychologists. The curriculum was produced through discussion with interested parties, including the European Association of Work and Organizational Psychology (EAWOP). Its starting point incorporated the view that work and organizational psychology was both a discipline and a professional speciality.

ENOP itself was founded in 1980, and comprises a network of university professors in work and organizational psychology from around 20 European countries. Their expectation is that the reference model will be used for evaluating existing educational curricula and modifying them to include a common

core of work and organizational topics, and thereafter experience gained by ENOP will be important in a number of related developments, including the accreditation of European work and organizational psychologists.

In terms of content, the ENOP reference model includes three areas: personnel psychology, work psychology and organizational psychology. Personnel psychology concerns the relationship between persons and the organization, in particular the establishment, development and termination of the relationship. Important topics include recruitment, training and performance appraisal. Work psychology concerns the work processes and tasks people have to perform at work. Important topics include workload, the work environment, error and equipment design. Finally, organizational psychology concerns how people behave collectively. Important topics include leadership, working in groups and organizational structure.

Occupational psychology in Britain

Since 1971, the British Psychological Society has had a division of occupational psychology which has three main aims. These are: to develop the practice of occupational psychology; to promote high standards of professional competence and behaviour among occupational psychologists; to increase public awareness of occupational psychology for the advantage of individuals and organizations. The division oversees professional development and sets the standards for becoming a Chartered Occupational Psychologist. Chartered Occupational Psychologists are concerned with the performance of people at work and in training, with developing an understanding of how organizations function and how individuals and groups behave at work. Their aim is to increase effectiveness, efficiency and satisfaction at work.

The main areas in which occupational psychologists have skills are: personnel selection and assessment; identification of training needs; organizational change and development; interviewing techniques; performance appraisal systems; vocational guidance and counselling; job and task design; group and inter-group process and skills; design of and adaptation to new technology; career and management development; industrial relations; ergonomics and equipment design; attitude and opinion surveys; occupational safety; design and evaluation training; equal employment opportunity; and stress management.

The Division of Occupational Psychology delineates eight main knowledge areas for occupational psychology which members of the division should demonstrate knowledge in. These are:

- human–machine interaction;
- design of environments and work, health and safety;
- personnel selection and assessment, including test and exercise design;
- performance appraisal and career development;

- counselling and personal development;
- training (identification of needs, training design and evaluation);
- employee relations and motivation;
- organizational development.

Applicants for membership of the division will generally have in-depth experience of at least one of the four main practice areas of occupational psychology, which are: work and the work environment (including health and safety); the individual (including assessment, selection, guidance and counselling); organizational development and change; and training.

Using This Book

Each author or authors was/were asked to write 8000 words approximately, and to address final-year undegraduate and MSc level students. They were to assume a knowledge of basic psychology, start with work-based issues and analyse them using basic and applied empirical research where possible. Each chapter was to use a mini case study or practical example as a theme or work-related reference point, offer solutions to issues and evaluate them, include all main approaches to the topic and provide an integrated, comprehensive and evaluative account. Authors were asked to emphasize a European perspective where possible. The chapters differ in the way they fulfil the brief just outlined, partly because different authors have different views about how to realize the objectives set for each chapter, and partly because different areas of work and organizational psychology shape what can be said about them. The strength of the text is in the freshness and vigour with which the authors have approached their task, and the fact that they are actively engaged with the topics they discuss. I hope this has led to an invigorating introduction to a diverse and complex field.

An Introduction to Work and Organizational Psychology can be read in many different ways. If you have turned to this section first you will have missed the broad introduction to the history and context surrounding the field. This introductory chapter has been written to put the reader in a critical, but interested, frame of mind. Chapter 2 is aimed at giving the interested reader a flavour of the practice of occupational psychology. Thereafter, parts II, III and IV provide the building blocks for an appreciation of the field, and closely parallel the content of European Network of Organizational and Work Psychologists reference model for knowledge in work and organizational psychology.

Part II concerns the person at work. The area comes first because it is how most people think about work when first confronted with a job: what job do I have to do, how will I be selected for it, what will be the nature of the training I receive in order to do it, how will I be appraised in doing it and what consequences will the job have for me in terms of the pressures I feel in it?

This part is concerned largely with the differences between people and jobs, and much of the research relies on a social/psychometric approach.

Part III considers the detail of the workplace. The area follows the job level because it is about aspects of jobs and the work environment, probably the next set of concerns to be noticed at work: what is the workload involved in what I do, what is the impact of my working environment on my performance, how and why have the technologies I work with paid heed to my capabilities and what are the consequences of my capabilities and attitudes to working safely? This part covers a considerable part of what has been called 'human factors', and the approach has been largely to consider people from a cognitive point of view.

Part IV discusses working with other people, and general organizational effects at work: what effect does leadership have, how does the design of the job and organization influence motivation, and hence my satisfaction and performance, what are the factors involved in my working in a team and what does it mean to consider organizational development and change? This part covers what is often termed organizational psychology, and is frequently concerned with analyses at the group or organisational level of behaviour.

Clearly there is a progression evident in parts II, III and IV. However, in terms of a particular area of inquiry the reader could cherry pick any chapter in order to find out more, and read an up-to-date critique of where we are in that part of work and organizational psychology. Reading a whole part will provide a comprehensive introduction to a major aspect of the discipline. The parts need not be read in the order they are presented to make sense. Each of the chapters in these three parts includes discussion points and key studies to help the student to explore the subject matter.

Part V is concerned with issues which transcend the previous parts. Whatever your job, work environment, group membership or organization, it is clearly important to consider issues of diversity in gender, race and age. The last chapter in the book discusses the very nature of work itself, and how this might change in the future. The chapter presents possible scenarios for all of us at work, and implies new and exciting challenges for understanding behaviour related to working.