

## Critically consider whether psychology is a science

Descartes' seventeenth-century philosophical dualism allowed scientists to treat matter as inert. This meant that the world could be described objectively, without reference to the human observer. Objectivity became the ideal of science, and was extended to the study of human behaviour and social institutions by Comte in the mid-1800s. He called it positivism. Descartes had also promoted mechanism, the view that the material world consists of objects which are assembled like a huge machine and operated by mechanical laws. He extended this view to living organisms, including human beings. Because the mind is non-material, it can only be investigated through introspection. He was also an early advocate of reductionism.

Empiricism refers to the ideas of the seventeenth- and eighteenth-century British philosophers Locke, Hume and Berkeley. For them, the only source of true knowledge about the world is sensory experience. The word 'empirical' has come to mean 'scientific'. This implies that what scientists do, and what distinguishes them from non-scientists, is carry out experiments and observations as ways of collecting data ('facts') about the world. Empiricism proved to be one of the major influences on the development of the natural sciences. Wundt, a German physiologist, is generally regarded as the founder of the new science of experimental psychology (in 1879). He used introspection to analyse consciousness into its elementary sensations and feelings (structuralism). The American psychologist Watson rejected what Wundt and other introspectionists were doing and founded behaviourism (1913). For psychology to become a true science, it had to limit itself to what could be studied objectively, namely behaviour (as opposed to mind or consciousness). Academic psychology in the U.S.A. and U.K. was dominated by behaviourism for the next 40 years. But dissatisfaction with it culminated in the 'cognitive revolution' of 1956. Central to this information-processing approach was the computer analogy. It was now acceptable again to study the mind, although in a rather different way from how Wundt had gone about it.

Most psychologists and philosophers of science would probably agree that for a discipline to be called a science, it must possess certain characteristics. These include a definable subject-matter (what it's about), theory construction (explanations of why observed phenomena happen), hypothesis-testing (predictions derived from theories), and the use of empirical methods to collect evidence relating to the hypothesis. This is all aimed at trying to establish general laws or principles. But this fails to tell us how the scientific process actually works in practice. For example, where does the theory come from in the first place, and what is the exact relationship between theory construction, hypothesis-testing and data collection? Accounts of the scientific process are referred to as the scientific method. The classical view of the scientific method is induction (or the inductive method), which was revised by Popper (1972) as the hypothetico-deductive method. In practice, both approaches are used.

Understanding how science works is crucial for assessing psychology's claim to be a science and what this means. According to Van Langenhove (1995), one of mainstream academic psychology's 'unexamined pre-suppositions' is scientism, the borrowing of methods and a vocabulary from the natural sciences in order to discover causal mechanisms that explain psychological phenomena. Scientism maintains that all aspects of human behaviour can and should be studied using the methods of natural science, which claims to be the sole means of establishing objective truth. This involves context-stripping and studying behaviour in a value-free way. The most reliable way of doing this is through the laboratory experiment, which provides the greatest degree of control over relevant variables.

A great deal of psychological research now takes place outside the laboratory. But according to Smith et al. (1995), whether the research is concerned with mind or behaviour and whether it's conducted inside or outside the laboratory, it tends to be constructed in terms of separation of behaviour into independent and dependent variables and the measurement of hypothetical relationships between them (what Rose (1997) calls reductionism as methodology). The natural sciences model (including the inductive method) has been attacked since the mid-1970s. For example, there's no such thing as unbiased observation, data aren't the same as facts ('fact' 5 data 1 theory: Deese, 1972), scientific theory and research reflect the biases, values and assumptions of individual scientists, and science involves quiet periods (normal science) and revolutions (Kuhn, 1962). But despite these and other criticisms, psychology is still dominated by the natural sciences model to a large extent. The most conspicuous effect of this is the continued dominance of experiments (Van Langenhove, 1995). In turn, this

has far-reaching effects on how psychology pictures people as more or less passive and mechanical information-processing devices, whose behaviour can be split up into variables. The dominance of experiments also affects how psychology deals with people. In experiments, people aren't treated as single, unique individuals, but as interchangeable 'subjects'.

Mainstream psychology, therefore, seems to be modelling itself on an outdated view of what natural science involves. But even if this view were still valid, psychology would face unique problems as a science. These include representativeness (generalising research findings to 'people in general' when participants are typically white, middle-class students attending Western universities), artificiality (generalising research findings to the 'real world' when they're based on 'unnatural' laboratory situations), and internal versus external validity (in trying to control relevant variables, the resulting behaviour may bear little resemblance to what the psychologist was originally interested in).

Definitions of psychology have changed during its lifetime, largely reflecting the influence of its major theoretical orientations (structuralism, behaviourism, cognitive psychology, psychodynamic, and so on). Each approach rests upon a different image of what people are like, what it's important to study and how to study it. Kuhn (1962) argues that a field of study can only legitimately be regarded as a science if most of its workers subscribe to a common perspective or paradigm. Kuhn believes that psychology is still pre-paradigmatic, while others believe it's already experienced scientific revolutions (Wundt's structuralism being replaced by Watson's behaviourism, in turn replaced by the information-processing approach: Palermo, 1971; LeFrancois, 1983). The crucial point here is: can psychology be considered a science if psychologists disagree about what to study and how to study it?

One of the factors that makes a paradigm different from a theoretical approach is its social psychological dimension. According to Richards (2002), one reason it may be impossible for any scientist to achieve complete objectivity is the social nature of scientific activity. How scientists perceive the world is shaped by the history of their discipline, dominant social expectations, and patterns of research funding (Rose, 1997). The fact that scientific revolutions (paradigm shifts: Kuhn, 1962) occur shows that 'the truth' can and does change. Even if there are widely accepted ways of 'doing science', 'good science' doesn't necessarily mean 'good psychology'. Is it valid to study human experience and behaviour as part of the natural world, or is a different kind of approach needed altogether? As Heather (1976) says, it isn't just psychologists who observe, experiment and theorise. Psychologists are part of their own subject-matter, which makes objectivity even more unattainable than in other sciences, as well as making psychology unique.