

# Is psychology a science? theories and research methods



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Is psychology a science? Discuss with reference to scientific method and bias in psychological research.

Psychology can be viewed in a variety of ways as accords to the many schools of thought that pertain to psychology. From its origins in philosophy, psychology has undergone a variety of classifications. The major scientific paradigms born from philosophical enquiry were the school of empiricism and the school of rationality. Essentially, these two approaches dictated the direction that psychology must take if it was to be regarded as scientific. One of the first schools of thought in psychology was heavily concerned with its reputation as a scientifically validity enquiry. This was to be known as the behavioural approach to psychology or the behavioural perspective.

The behavioural perspective was devised by Watson who used observation to determine evidence. As a consequence of according to the governing principles of objective scientific research, Watson rejected the notion of any internal psychological mechanisms as he believed that this could not be quantifiably measured (Miell et al, 2002). All Watson was interested in was the observable external phenomena, which meant the analysis of behaviour. Consequently, Watson placed an emphasis on psychology as primarily a learning phenomenon. A fundamental distinction that occurs within behaviourism is within this role of learning. Essentially, two approaches formed called classical and operant conditioning. Research into classical conditioning was defined by physiologist Pavlov who was also concerned with scientific analysis. Pavlov observed that in relation to certain stimuli dog's behaviour could be conditioned through association (Miell et al, 2002). Using a dogs' biological response to hunger, Pavlov was ble to scientifically

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demonstrate that there was a basic relationship between an observable stimulus and the animals learned response. Whilst in operant conditioning, Skinner was able to ascertain that there was a pre-conceived notion in the environment that led the animal to learn through a process of trial and error, which led to observable schedules of behaviour (Skinner, 1946/1990). In both classical and operant conditioning we can see that learning is defined as a scientifically observable and so provable modification of behaviour caused by association and manipulation of the environment. However, this approach clearly lacks greater insight into the role of the mind, its cognitive processes and also suffers from being based upon animal and not human studies.

The cognitive approach addresses the human capacity to categorise, generalise and conceptualise certain phenomena. Primarily concerned with the functioning of the mind itself it engaged in the scientific analysis notions such as memory, perception and categorisation (Miell et al, 2002). Unhappy at the flaws in behavioural psychology, cognitive psychologist Bruner, devised a test to see how we mentally constructed categories. Unlike the objective approach of conditioning, Bruner suggested that this was an engaging intelligent procedure that was performed by way of hypothesis testing - stages of acceptance and rejection based upon trial (Bruner et al, 1956). To be valued as scientific, a test involving a variety of shapes were used in a variety of conditions. Some of these conditions shared the same number of shapes, some the same colour of shape, whilst others shared the same number of borders. No two varieties were identical. From the results of this experiment, Bruner was able to surmise that there were two forms of cognition that had been present. Successive scanning, which tested one

hypothesis at a time and conservative scanning, which sought to eliminate classes of hypotheses (Bruner et al, 1956). Unlike the behavioural approach, we can see from the findings and classifications of these studies that an attempt is being made to understand the intelligent human mind with regards to categorisation. However, categorisation is not accepted by everyone in the field of science and its objective validity does suffer from critical enquiry. For instance, addressing the empiricism versus rationalism argument, many have argued that the categories in the study are innate rather than learned (Chomsky & Fodor, 1980). This strengthens the behavioural notion that the conceptual structure of the mind is open to interpretation, and so cannot be considered an entirely scientific approach to psychology.

Another school of thought within psychology is that concerned with the social aspect. This is primarily interested in the role that social influence has on our behaviour. For instance, in the findings of a test put forward by Sherif, we can see the extent to which people will use the word of others and the resource of group norms to ascertain a truth about something. This is an important concept with regards to the influence of social norms as we can observe that our psychology is influenced by our conformity to social norms (Sherif, 1936). Similarly, a test devised by Asch revealed that conformity of an individual to a norm was indicative of individual identity (Asch, 1956). Similarly, research by Baron indicated that through a lack of responsibility that an individual felt to correct and deviate from a social norm an account could be made to configure their potential to conformity (Baron et al, 1956). Essentially, these tests revealed that the role of responsibility was based

upon conceptions of social norms, attitudes, beliefs and ideologies.

However, these findings suffer from being based upon social norms and cultural constructs such as identities and beliefs and so cannot be considered universal, objective principles that would accord to the main scientific schools such as physics and chemistry.

Another key school of thought is psycho-analysis and developmental psychology. Stemmed from Freudian theory, psycho-analysis and developmental psychology is concerned with the development of the subject's personality in relation to underlying motives and mainly sexually based desires and conflicts (Freud, 1917/1973). Using a notion of basic primordial drives, Freud put forward various schemas of development that dictated our personality and variations in our behaviours, such as conforming to social norms. The agents at work within these drives and the accompanying stages of development were commonly referred to as defence mechanisms. Defence mechanisms were put forward as being ways in which the subject could cope with the real and disturbing psychological issues that they had to face throughout life, such as anxiety and confusion. These mechanisms consisted of such concepts as denial, projection and regression and are commonly established psychological phenomena that form the core rationale of developmental and psycho-dynamic paradigms (Freud, 1917/1973). Although these factors are well established concepts within mainstream psychology, they still depend upon a structural paradigm to be understood. Much criticism has come in the form of humanistic approaches who have suggested that these models of development are dependent upon

the objectifying of the subject and that this approach is a convenient theoretical model rather than being scientifically accurate.

Another school of thought is one that actually rejects objective science at its core. The phenomenological approach to psychological study is primarily based upon perception and subjectivity. Formed as a way of countering the empirical approach to psychology that had led to the field of cognitive psychology, phenomenological psychology suggested that knowledge was learned entirely from the external environment via lessons that were encapsulated in our experience (Merleau-Ponty, 1964). Detaching from the scientific notion of *tabula rasa*, which had dominated the opposing stance to the rationality of science, Merleau-Ponty looked at the notion of perception and in particular how it was informed by phenomena, rather than through observation of objects taken from their natural environment. Fundamental to this approach is the notion that everything we experience accords to the phenomena in which it is presented, and so objective science cannot tell us about our psychological experience. This approach most certainly rejects psychology, as well as many other enquiries, as a scientific pursuit.

We can see from these schools of thought that to call psychology a pursuit of objective scientific fact is flawed. However, we can also see that there is a strong emphasis in each case placed upon validity. Even the rejection of objectively defined scientific principles shown by the phenomenological approach gives indication that validity and limitation of enquiry are paramount, which is surely the premise of scientific analysis.

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