Discuss the extent to which Psychology is a Science.

Psychologists use scientific methods, and when viewed from this perspective it is clear that Psychology does qualify as a science. This is due to the fact that scientific methods are the preferred method of investigation for the majority of psychologists. The most popular use of experiment are laboratory experiments in Psychology, as they offer the psychologist opportunities for control and prediction that are absent in less 'scientific' methods of investigation (Cardwell, Clark & Meldrum, 2004).

There is also room for argument that some individual levels of Psychology are scientific in themselves. Psychology embraces explanations at different levels, ranging them from the physical to the sociological. Some levels of Psychology are widely acknowledged to be scientific, such as research into the Neuropsychology, Biopsychology, Cognitive Psychology and the study of mental illness (Buskist & Gerbing, 1990). The problem for Psychology occurs in the more social side of Psychology, where the dispute to scientific validity remains despite identical scientific methods being employed (Cardwell et al, 2004).

However, while psychologists may well use scientific methods, such research has been criticised in terms of a lack of both internal and external validity. Due to 'demand characteristics' operating in a study, internal validity has been criticised (Cardwell et al, 2004). A demand characteristic is a feature of the experiment that invites predictable responses from the participants so that they do not behave as they normally would; they are cued to behave in a particular way due to the conditions of the experiment (Buskist & Gerbing, 1990). Once demand characteristics are present it can be argued that scientific objectivity has been lost. The counter-argument from the Psychology community is that these characteristics are taken into account through methods such as counterbalancing and increased stringency for statistical significance.

Other experiments have been criticised for low external validity, for example Asch's(1956) study of conformity and Milgrim's (1974) study of obedience. Both were criticised for low realism (Cardwell et al, 2004). This may hold up for Asch's experiment, but the very strong counter-argument from Milgram states that this was a realistic situation as it was one which mimicked that found during the Second World War in the 1940's and the communism witch-hunt in the USA in the1950's. Milgram also countered the validity arguments by

providing evidence in the form of video tapes of participants' reactions – all of which showed individuals in genuine distress rather than faked reactions.

There is one main difficulty with Psychology being considered as a science. It runs counter to the argument that Psychology has a paradigm. Kuhn (1962) claimed that the paradigm was the key feature of any science, what characterises any science is a shared set of assumptions and a shared methodology. If Psychology consists of different levels or kinds of explanation, some of which are more scientific than others, then it cannot claim to have a paradigm. Thus, while some levels of Psychology are in fact scientific, Psychology as a whole can not claim to be a science. However, we might equally point to Rose's description of five biologists and the frog (1997), which his view of biology was one of a number of different paradigms, none of which provided a complete explanation of the frog's ability to jump on a log. Psychology considers multiple angles and opinions when considering results, making it perhaps more explanatory than any 'traditional' science.

Science is determinist by nature (Cardwell et al, 2004); the basis of the scientific approach is that everything (including behaviour) is predictable. Therefore science attempts to do experiments whereby cause and effect relationships can be studied and which can be used to explain the world around us, including human behaviour. However the determinist view raises difficulties for free will and moral responsibility (Cardwell et al, 2004), topics which Psychology deals with on a daily basis – and which might lead us to reject the scientific approach as a way to investigate human behaviour. In this argument Psychology as a whole is not scientific as free will must be taken into account at all levels of experimentation.

However science is not necessarily determinist, it is shown that there are ways to incorporate the concept of free will within a determinist framework (Cardwell et al, 2004), there is regularity in human behaviour which does lend itself to being determined and therefore studied scientifically. In addition to this the physical sciences no longer subscribe to a purely determinist framework and this reduces the perceived gap between Psychology and the 'traditional' sciences (Cardwell et al, 2004).

Science is also reductionist; everything is reduced to its simplest level in order to be studied comprehensively. As a result, to carry out a scientific investigation or test, psychologists must be able to observe whatever it is they are investigating (Buskist & Gerbing, 1990). This may seem to be a simple

requirement, but it is not always possible in Psychology. For example, there are many events such as motivation or fear which are impossible to observe directly. Instead psychologist's must rely on indirect measures of these events, and assume that these reflect the underlying elements under investigation. For example, we may choose to define or operationalise, fear in terms of some physiological change, such as sweating or pupil dilation, or motivation in terms of questionnaire responses. The trouble with operational definitions is that they are not necessarily measurements of the thing which researchers are actually originally interested in (Cardwell et al, 2004). The consequence of this is that psychologists often explore the relationship between two things, without ever being able to measure the subject directly. Instead, observations are frequently one step removed from the phenomenon that is actually under investigation. The result is that psychologists end up measuring something different from their intended phenomena and reach false conclusions. This approach does not fit within the scientific paradigm.

There is also a view that objectivity is not possible within Psychology (Buskist & Gerbing, 1990). It is clear that objectivity is an important characteristic of scientific enquiry, by this we mean that there is an assumption that any subjective influences such as values and expectations of the investigator are excluded from the investigation in hand. In this way, scientists can be sure that the results of the experiment are not distorted in any way because of the subjectivity of the investigator. There are many difficulties with objectivity in Psychology, for example 'observer bias' and 'experimenter bias'. Observer bias is the view that when a researcher observes behaviour such observations are inevitably affected by the observer's expectations about what they expect to happen. Experimenter bias is where the experimenter's preconceptions are passed onto the participants, leading to changes in participant's behaviour as a consequence of researchers expectations (Buskist & Gerbing, 1990).

However it can be argued that objectivity is not entirely possible in any science. This same problem over objectivity can be argued to occur even in physical sciences. The uncertainty principle (Cardwell et al, 2004) shows that true objectivity can only be an ideal for scientific research. The concept of science as being objective is also challenged by those who point out that science is as much a social activity as a mechanical one (Cardwell et al, 2004). The work of scientists is influenced by prevailing social attitudes, which in effect influence the structure of experiments and knowledge.

In conclusion, while some areas of Psychology can be considered less scientific than others, Psychology as a complete discipline does follow scientific principles and there is evidence that it conforms to these as far as 'traditional' sciences are able to.

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