Scientific Psychology: Can We Truly Measure the Human Mind?

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Despite having a scientific methodology worked out (we think), there are further problems and arguments which throw doubt onto psychology ever really being a science. Limitations may refer to the subject matter (e.g. overt behavior versus subjective, private experience), objectivity, generality, testability, ecological validity, ethical issues and philosophical debates etc.

Science assumes that there are laws of human behavior that apply to each person. Therefore science takes both a deterministic and reductionist approach. Science studies overt behavior because overt behavior is objectively observable and can be measured, allowing different psychologists to record behavior and agree on what has been observed. This means that evidence can be collected to test a theory about people.

Scientific laws are generalisable but psychological explanations are often restricted to specific times and places. Because psychology studies (mostly) people, it studies (indirectly) the effects of social and cultural changes on behavior. Psychology does not go on in a social vacuum. Behavior changes over time, and over different situations. These factors, and individual differences, make research findings reliable for a limited time only.

Are traditional scientific methods appropriate for studying human behavior? When psychologists operationalise their IV, it is highly likely that this is reductionist, mechanistic, subjective, or just wrong. Operationalising variables refers to how you will define and measure a specific variable as it is used in your study. For example, a bio psychologist may operationalise stress as an increase in heart rate, but it may be that in doing this we are removed from the human experience of what we are studying. The same goes for causality. Experiments are keen to establish that X causes Y, but taking this deterministic view means that we ignore extraneous variables, and the fact that at a different time, in a different place, we probably would not be influenced by X. There are so many variables that influence human behavior that it is impossible to control them effectively. The issue of ecological validity ties in really nicely here.

Objectivity is impossible. It is a huge problem in psychology, as it involves humans studying humans, and it is very difficult to study the behavior of people in an unbiased fashion. Moreover, in terms of a general philosophy of science, we find it hard to be objective because we are influenced by a theoretical standpoint (Freud is a good example of this). The observer and observed are members of the same species are this creates problems of reflectivity.

A behaviorist would never examine a phobia and think in terms of unconscious conflict as a cause, just like Freud would never explain it as a behavior acquired through operant conditioning. This particular viewpoint that a scientist has is called a Paradigm (Kuhn, 1970). Kuhn argues that most scientific disciplines have one predominant paradigm that the vast majority of scientists subscribe to. Anything with several paradigms (e.g. models - theories) is a pre-science until it becomes more unified. With a myriad of paradigms within psychology, it is not the case that we have any universal laws of human behavior, and Kuhn would most definitely argue that psychology is not a science.

Verification (i.e. proof) may be impossible. We can never really, truly prove a hypothesis, we may find results to support it until the end of time, but we will never be 100% confident that it is really

true. It could be disproved at any moment. The main driving force behind this particular grumble is Karl Popper, the famous philosopher of science and advocator of falsificationism.

Take the famous Popperian example hypothesis "All swans are white". How do we know for sure that we will not see a black, green or hot pink swan in the future? So even if there has never been a sighting of a non-white swan, we still haven't really proved our hypothesis. Popper argues that the best hypotheses are those which we can falsify - disprove. If we know something is not true, then we know something for sure.

Testability: much of the subject matter in psychology is unobservable (e.g. memory) and therefore cannot be accurately measured.

The fact that there are so many variables that influence human behavior that it is impossible to control the variables effectively.

So, are we any closer to understanding a) what science is, and b) if psychology is a science? Unlikely. There is no definitive philosophy of science, and no flawless scientific methodology. When people use the term "Scientific" we all have a general schema of what they mean, but when we break it down in the way that we just have done, the picture is less certain. What is science? It depends on your philosophy. Is psychology a science? It depends on your definition. So - why bother, and how do we conclude all this?