

Psychology as a Science

Definitions & Varieties of Science

- Humans invented science and its methods of investigations, but then humans began using the same methods but to study the mind and behaviour.
- **100yrs of years ago 'science' was fast becoming the only respectable way of obtaining 'proper' knowledge.**

Definitions

- Science refers to either:* the scientific method – a process for evaluating empirical knowledge; or* the organized body of knowledge gained by this process
- Systemized knowledge derived through experimentation, observation, and study. Also, the methodology used to acquire this knowledge
- The body of related courses concerned with knowledge of the physical and biological world and with the processes of discovering and validating this knowledge.
- **Systematically acquired knowledge that is verifiable.**
- **Constructed knowledge based upon empirical evidence and inductivist logic which seeks to ascertain nomothetic truth within a given paradigm (Karl Popper)**

It is clear that there is no clear, universal definition, however, they all share common characteristics.

Characteristics of science

- **Objectivity** – the methods are not influenced by the researchers own beliefs.
- **High control** – over I.V, D.V and C.V's. (lab experiments)
- **Empiricism** – uses empirical methods i.e. using the senses to obtain results and to measure observable phenomena.
- **Method of enquiry** – involves making a prediction about an expected outcome, a testable hypothesis backed up with a theory which is able to be verified or falsified.
- **Falsifiability** – The ability to prove that a statement is untrue or false.
- **Replicability** – the method is written in such a way that it can be replicated by another researcher and help yield reliable data
- Interested in the relation between ontology, epistemology and methodology (relates to Kuhn's paradigm)
 - **Ontology** - The study of what actually exists
 - **Epistemology** - The study of the varieties, foundations and limits of what we can know
 - **Methodology** - The study of means of investigating a phenomenon
- **Nomothetic knowledge** – is universal laws of reality, that apply in all times and places.
- **Idiographic knowledge** – Is a universal law, which is refined in order to fit unique events or experiences.

Varieties of science

- Hard sciences/Natural sciences – Biology, Chemistry, Physics
- Soft sciences/Social sciences – Psychology, Politics, Sociology
- Natural sciences – use more rigorous, reductionist approaches and experiments.
 - Methods used by natural sciences try to establish cause and effect relationships
 - Inductive knowledge – uses empirical methods to come to a conclusion, then makes a general statement that can be generalised to the wider world.
 - The process of reasoning comes from the particular to the general producing a natural law.
- Social sciences – Also use the reductionist and determinist approaches of natural sciences. But due to the subject matter e.g. the mind and behaviour, conducting experiments in the same rigour is not possible
 - **Karl Popper (1959) – Argued inductive knowledge could never demonstrate the truth of knowledge i.e. that knowledge can be verified, but never falsified.**
 - **Deductive knowledge** – using natural laws proposed as an outcome of induction. A hypothesis is produced based on a theory which can be tested experimentally. The results will either help to reject or retain the null hypothesis and the original theory can then be retained or refined in light of the results
 - The process of reasoning goes from the general to the particular.

Kuhn's Paradigm

- Argued that the logical view of science (through inductive/deductive means) did not relate to the standard views of the scientific method
- **Claimed that science operates within a given paradigm – a theoretical framework**
- He claimed that because scientists were committed to their paradigm e.g. Freud was committed to his psychoanalytic views on schizophrenia, they only seek to find supportive evidence that fits their accepted assumptions of that science.
 - As a result they always try to find supportive evidence and try to discredit contradictory evidence.
- **Kuhn believed that it was possible for 1 paradigm to overthrow another, gradually changing the zeitgeist until it becomes accepted as the dominant paradigm**
- Consequently, Kuhn argued that scientists were not objective as it is believed, as scientists rejected any opposing views to their theories and experimental results
- **Also, because psychology has many paradigms e.g. biological, humanistic, psychodynamic, psychology would never be able to become a science as it has failed to develop 1 paradigm (maybe this demonstrates the complexity of humans)**

The Paradigms

- **Behaviourists** – first attempted to create a unified scientific psychology. Behaviourists follow the philosophy of positivism – which argues scientific knowledge is operational and that events can be verified by experiments. However, this means that only observable behaviour can be measured in experiments and therefore rules out the human mind
- **Humanistic** – place great value on subjective experience
- **Cognitive** – are into consciousness and thought processes – are interested in memory, perception and language – these are part of what we call our private and conscious experience.

Karl Popper

- **Argues that scientific theories are falsifiable** – they can be shown to be untrue.
- For example, theories such as Freud's theory of forgetting called regression cannot be directly measured or observed, thus cannot be shown to be true or untrue – this is called non-falsifiable or unfalsifiable. Freud's theories are considered not scientific
- A distinction has been made between what is observable as amenable to the scientific approach and that which is not observable as subjective and not open to scientific study. – Just because it is not observable, does it mean it doesn't exist? E.g. gravity is not observable but only by its effects.

Scientific Methodology

- Most common the lab experiment – high levels of control over variables – I.V, D.V, C.V
 - Also are constructed in such a way that they can be replicated by other researchers, in order to produce reliable results
 - Are objective – researchers don't impose their own values on the study, however this point is questionable.
- **Despite these +ve aspects they have the following disadvantages** -
 - Demand characteristics – a cue/clue that conveys the researchers hypothesis may be discovered by the ppt, so will act accordingly.
 - Evaluation apprehension – ppts may be worried about how they appear to the researcher, so will act in a socially desirable manner
 - **Investigator effects** – the ways in which the researcher influences the behaviour of ppts e.g. in Milgrams electric shock experiment, where he wore a white lab coat, so the ppts were more obedient to his authority
 - **Ecological validity** – the extent to which the research findings from an experiment can be generalised to the wider population – i.e. artificiality of research methods
 - View people as a machine – is deterministic and reductionist
- A psychology experiment is only replicable to the extent that the method, procedure, materials used and gathering of participants are clearly and precisely described
- The scientific approach fosters a view of people, in principle are, predictable, controllable and reducible to laws and regularities of human behaviour
- **Andocentric** – Male bias, looking at events only from a male perspective.

General points

- What is the problem of psychology having mini-paradigms e.g. cognitive, behaviourist, humanistic?
- There is no agreed paradigm on how psychology should operate or should investigate phenomena
- Conversely, it illustrates just how complex humans are compared to chemicals – i.e. you cant put humans in test tubes
- **Kuhn (1962) argues psychology is pre-paradigmatic – i.e. it has no agreed paradigm,**

and according to him psychology is in a state of pre-science.

- **It is argued that no scientist can be 100% objective, as their paradigm limits acknowledgement or understanding of alternative theories to their own, thus they impose their own values on the research.**
- How can we objectively measure what a Buddhist monk is thinking while he meditates, since there are no behavioural indications or overt behavioural displays? Behaviourists would ignore scenario's like this
- **Definitions of eating disorders in the ICD and DSM are not objective and are completely based on culturally biased research - i.e. ethnocentrism.**