



IS Psychology A Science?

Issues & Debates.
(PYA5)

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Is psychology a science?



- All sciences share a common method of investigation.
 1. Systematic empiricism (“data-driven”)
 2. Production of public knowledge (“objectivity”)
 - a) replication
 - b) peer review
 3. Examination of solvable problems (not looking for the meaning of life); “empirical questions”
- Why this method? You can't just assume that things will happen the way that you think they will (biases). You need to have evidence!

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Obstacles to Psych. as a Science

- Portrayal in popular entertainment
 - misconceptions about methods
 - psychologists portrayed as foolish, incompetent
 - Other stereotypes promoted in TV, movies
 - “Dr. Dippy”
 - “Dr. Evil”
 - “Dr. Wonderful”
 - “Dr. Rigid”
 - “Dr. Line-Crosser”
- Freud's fame



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Does Psychology meet the criteria of science?

- Psychology uses the scientific method to study the full range of human and non-human behaviour, and its applications are scientifically based.
- 1. Psychology is not just Freud! The full range of behaviour encompasses many topics. The logistical methods are very different, but systematic observation is common to all topics.
 - the above lead to further study and *replication*

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Does Psychology meet the criteria of science?

2. Production of public knowledge for peer review
 - publications (journals, books)
 - presentations, talks, posters
- 3 Asks solvable questions
 - uses *operational definitions* (terms of measurement) to test *hypotheses* (predictions) derived from *theories* (concepts that explain data and predict future events)

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GOALS OF SCIENCE...

Describe

- Predict
- Explain
- Control
- ... BEHAVIOURAL PHENOMENA!



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Arguments for psychology as a science.

- J Scientific research is desirable- Those who sought to create a science from psychology were able to do so by producing verifiable evidence.
- J Certain areas of psychology are scientific. E.g. physiological, and genetic psychology.

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Arguments against psychology as a science.

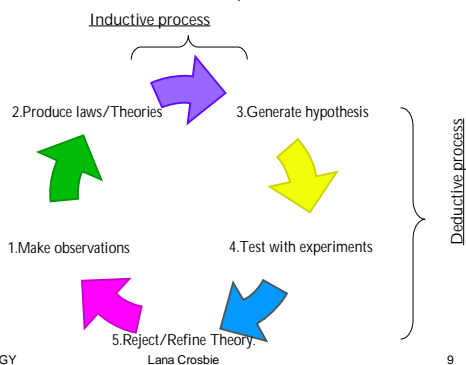
- L Psychological experiments lack external validity. That is finding from experiments are not always supported by real life observations.
- L Psychological experiments lack internal validity, that is, the observed effects may result from variables other than experimental manipulation.
- What other problems do psychologists face when conducting experiments??

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Induction & Deduction (combine to produce scientific method).



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Deductive and Inductive reasoning.

- *Inductive process*- Reasoning from particular to general E.g. Scientists may observe instances of a natural phenomenon and derive a general law (inductive)
- *Deductive process*- Reasoning from general to particular. E.g. Start with a theory & look for instances that confirm this (deduction).

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Against Deductive Reasoning.

The concept of *Falsibility*.

Theories are not fine tuned by successive experiments.

Normal science

Revolutionary shift.

ONE THEORY REMAINS DOMINANT UNTIL GROWING EVIDENCE PROVES OTHERWISE AND THEORY CSN NO LONGER BE MAINTAINED.

NEW THEORY PREVAILS AND A SHIFT IN OPINOIN OCCURS!!

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Against Inductive reasoning.

- Theories should be refutable and should aim to falsify rather than support theories
- Falsification is best achieved by advancing bold and precise hypotheses, and if the theory is falsified it should be rejected. Thus Popper suggests that science is advanced through refutation rather than support.
- This is why we always ensure that we include null hypotheses.

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Ψ A few words on the debate... for psychology as a science.

- As psychologists are we looking for the same achievements as other scientist's
- X causes Y in physics but can we say the same for human behaviour?
- Falsibility- Freud's theory is not falsifiable... if a theory is cannot be falsified it is not scientific.

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Ψ A few words on the debate... against psychology as a science.

- There are success stories in psychology based upon lab experiments i.e. bystander behaviour.

Similar problems occur with other sciences.

Heisenberg (1927) argued that it is not possible to measure subatomic particle without altering it's behaviour by doing the measurement. This uncertainty principle is a kind of what... .. effect?

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