

THE STATUS OF PSYCHOLOGY AS A SCIENCE

Controversies and debates in Psychology

TWO MAIN QUESTIONS...

- Given your understanding of the psychological key approaches, we now move onto central key controversies within the psychological arena. We will be using your knowledge to consider and debate these pertinent issues.
- 1. Is Psychology a science? Does it meet the criteria for a science?
- 2. Should Psychology be a science? Should we strive for this as a discipline?

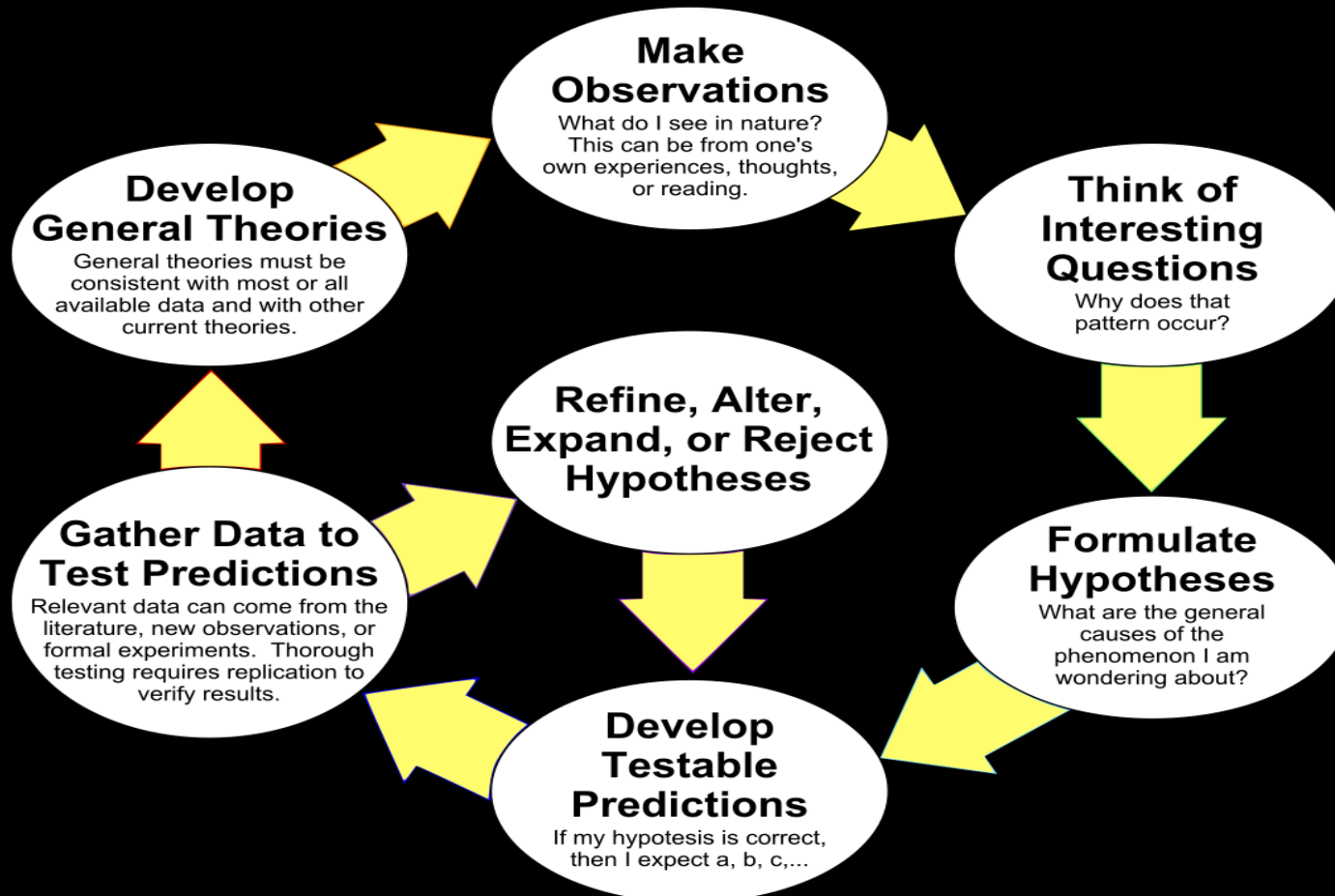


WHAT IS SCIENCE?

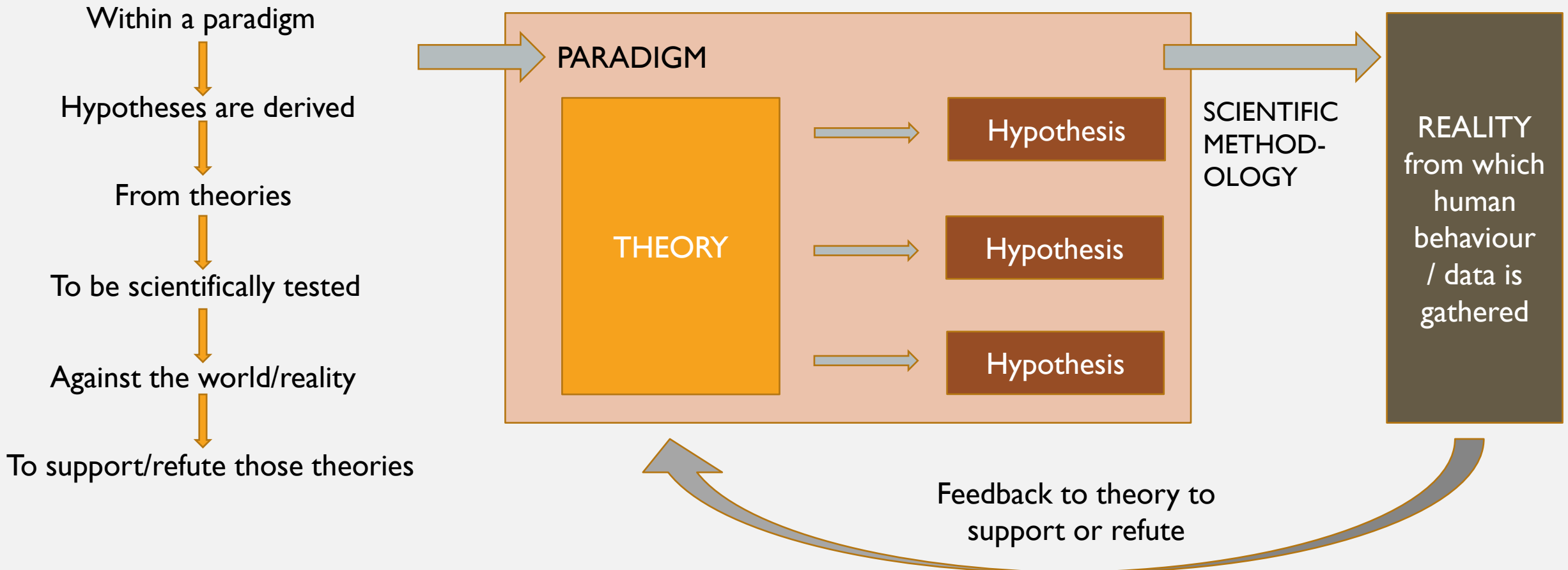
- According to Eysenck & Keane (1990), science has the following features;
- The use of the scientific method
- The ability to make controlled observations and the manipulation of variables
- Reductionism
- Falsifiability
- Objectivity
- Replicability
- The testing of theoretical predictions
- A clear theoretical orientation (paradigm)



THE USE OF THE SCIENTIFIC METHOD

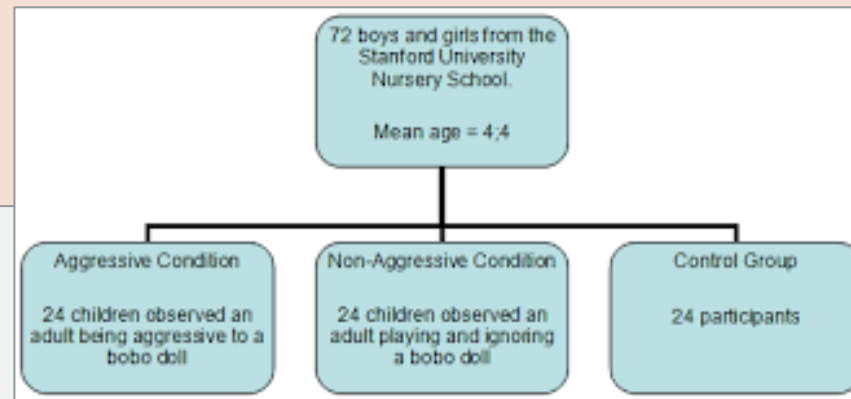


THE SCIENTIFIC METHOD



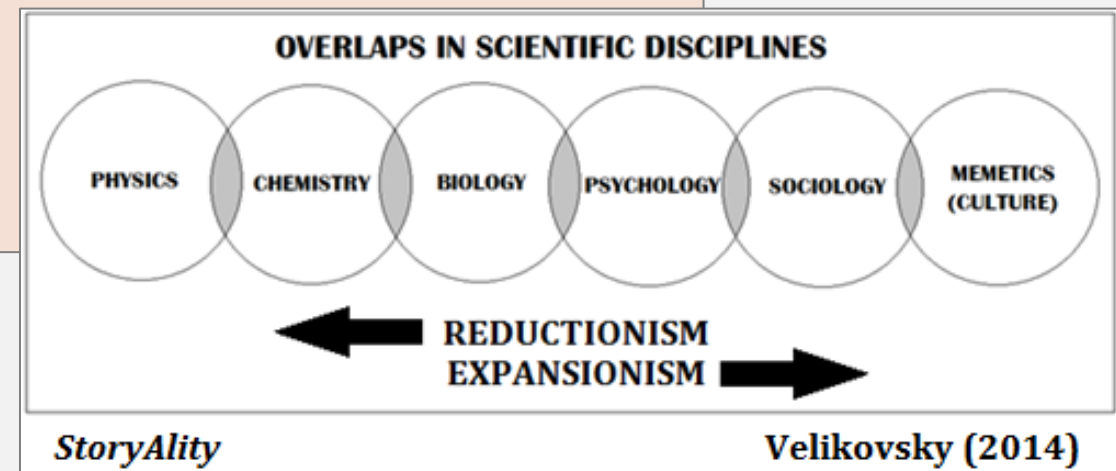
CONTROLLED OBSERVATIONS AND MANIPULATION OF VARIABLES

- Think of examples that you have come across where research has used controlled observations...
- E.G. Dement & Kleitman (1957) The relation of eye movements during sleep to dream activity: an objective method for the study of dreams.
- And the manipulation of variables?
- The Bobo Doll Experiment and the three conditions (variables).



IS PSYCHOLOGY A SCIENCE?

- At what level/levels is Psychology a science?
- Thinking of the approaches that you have studied, which of these can be considered REDUCTIONIST?
- Reductionism is one of the key features of the scientific method
- What exactly do we mean?



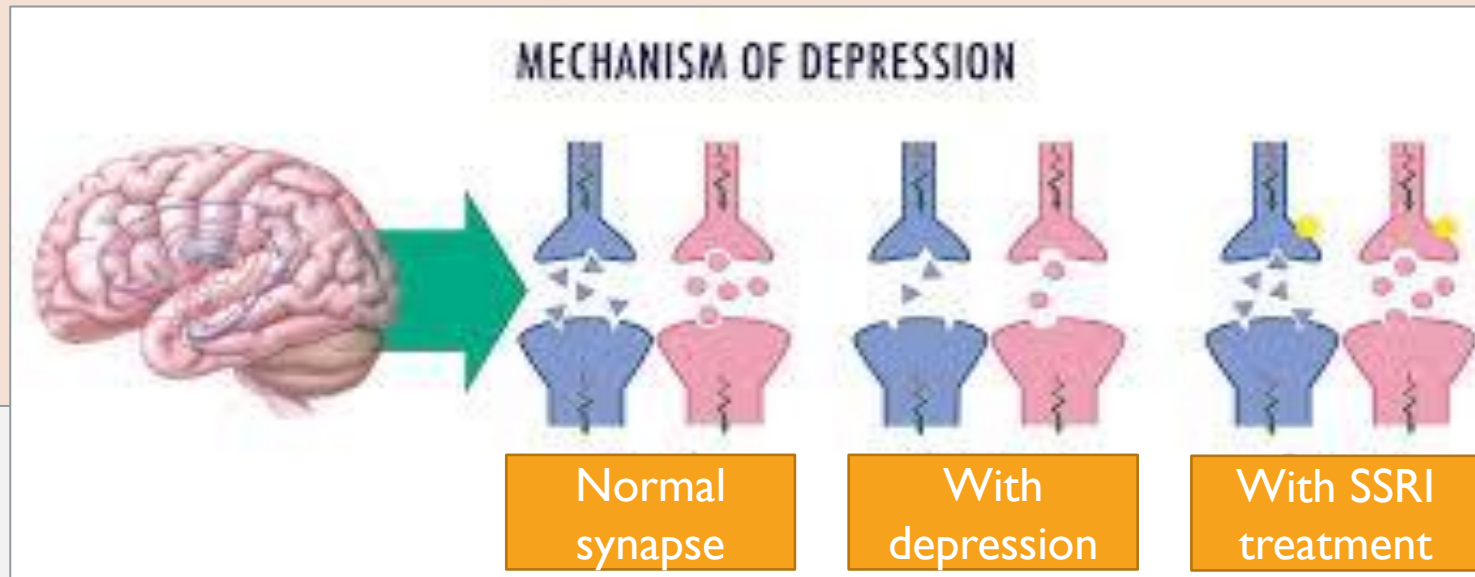
WHY IS REDUCTIONISM DESIRABLE?

- From a reductionist point of view, we can produce testable theoretical questions and hypotheses, we can test these under controlled conditions which can involve the manipulation of certain variables, conditions or behaviours.
- Reductionism is desirable because we can use it to test a theory, concept or idea for falsification.



EXAMPLE OF A REDUCTIONIST EXPLANATION

- E.G. Depression. A reductionist explanation would argue that the simplest explanation for depression is that it is caused by an imbalance of the neurotransmitter serotonin at the level of the synapse and that administering SSRI's will make more serotonin available and alleviate depression.



ISSUES WITH REDUCTIONISM

- Can all aspects of human behaviour be explained this way?
- How valid are reductionist explanations?
- Think of the larger issues of using the scientific method in general...
- Other examples?



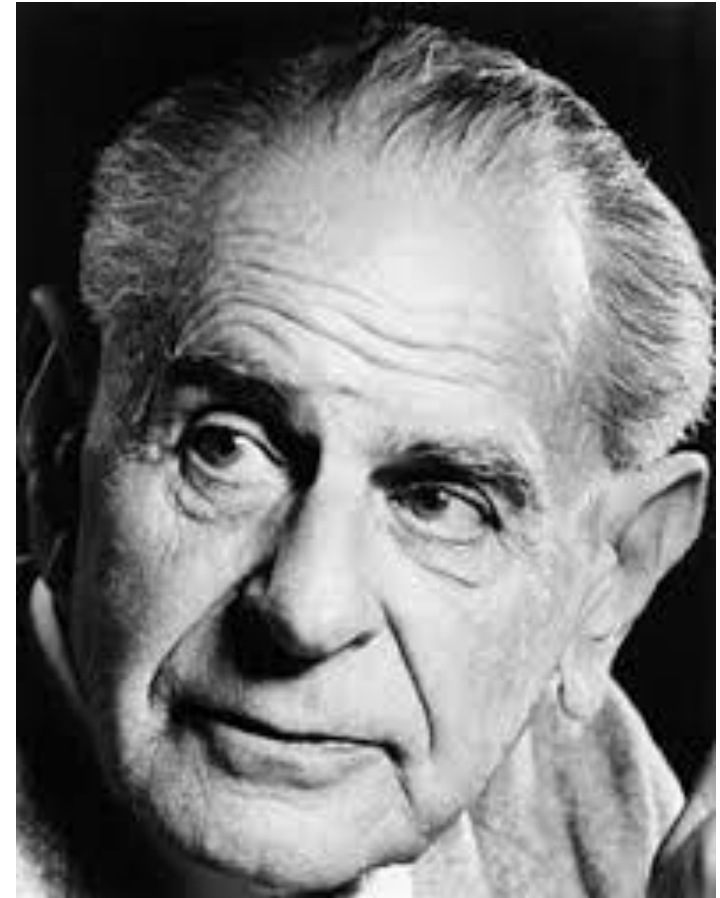
WHAT IS FALSIFICATION?

- According to Popper (1969), we do not seek to prove a theory or idea, we seek to disprove it.
- If we cannot disprove a theory, concept or idea, then we can tentatively accept it as being non-falsifiable. But does this mean that these ideas are true?
- We must look at the available evidence until such time that new findings emerge... This is why we always include a null hypothesis in research.
- Think of Freudian ideas of the unconscious, can we disprove these concepts? Does this mean that they are correct?
- The goal of scientific research is to disprove our theories and ideas.
- Just because you've never seen a black swan, it doesn't mean they don't exist...



SO, CAN PSYCHOLOGY EVER BE TRULY SCIENTIFIC?

- Is Psychology fully objective?
- Are all psychological investigations fully controlled?
- Is there a clear paradigm (more on this later)
- Can we always produce replicable results?
- According to Popper (1972), Psychology is unique because we are humans studying ourselves. How is it possible to remain fully objective and impartial?
- We always have an idea of what we are looking for. We start out with an idea or concept that we expect to see... even in animal studies...



AN ADDITIONAL POINT-

The Heisenberg uncertainty principle states that it is impossible to know simultaneously the exact position and momentum of a particle. That is, the more exactly the position is determined, the less known the momentum, and vice versa. This principle is not a statement about the limits of technology, but a fundamental limit on what can be known about a particle at any given moment. This uncertainty arises because the act of measuring affects the object being measured. The only way to measure the position of something is using light, but, on the sub-atomic scale, the interaction of the light with the object inevitably changes the object's position and its direction of travel.

- Heather (1976), people are not passive recipients; they actively engage in life and in research.
- Laboratory experiments are artificial and not representative of life. Generalising from these artificial situations are useless- they give us no indication of how an individual will respond or react in the real world.
- Think of the Heisenberg Uncertainty Principle....

Lacking in ecological validity

Mundane realism

IS OBJECTIVE SCIENTIFIC RESEARCH POSSIBLE IN PSYCHOLOGY?

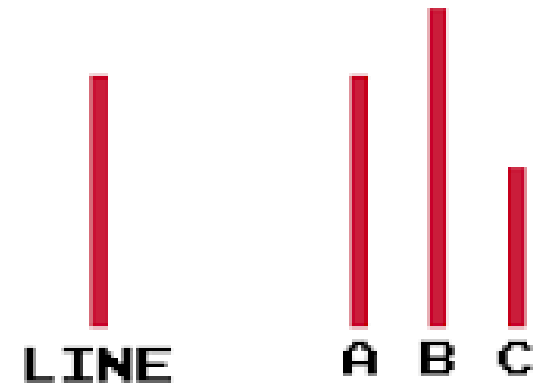
- Most people would agree that scientific research is necessary to separate the common sense statements from the scientific facts.
- Take the following statements often quoted as examples of common sense:
- Birds of a feather flock together....
- How do we know? How would we test this?
- What about
- Opposites attract.....
- How do we know which of these opposing statements is true, if at all?
- This is where EMPIRICAL evidence is key



REPLICABILITY

- Replicability is an important feature of science. It means that a study should produce the same results if repeated exactly, either by the same researcher or by another.
- [Conformity in a lift](#)
- Social Psychology has demonstrated repeatedly, the power of social influence and conformity to social norms. Back in 1955 Solomon Asch showed how relatively easy it is to elicit compliance in individuals.
- [Asch \(1955\)](#)

WHICH LINE IS
THE SAME LENGTH
AS THE LINE
ON THE LEFT?



DOES PSYCHOLOGY SHARE THE SAME GOALS AS SCIENCE?

- According to Allport (1947) science has three main goals. These are;
 - Prediction
 - Understanding
 - Control
-
- Do we have these within psychology?
 - Using your knowledge of the psychological perspectives, think of examples where these goals are achieved.



UNDERSTANDING, PREDICTION AND CONTROL

- **Understanding** – theories should provide understanding by being orderly (follow a pattern), consistent (reliable), parsimonious and true (valid).
- **Prediction** – a good theory should generate precise hypotheses to stimulate research to support or refute an idea. We should be able to test these hypotheses using statistics and probability, which allow us to make inferences from our findings.
- **Control** – theories should be useful and have practical implications, such as solving problems and improving the human condition.



EVALUATION

- You should now appreciate that psychology does not always address all three goals of science consistently in all cases. Sometimes we have one or two of the goals but not necessarily all three.
- However, will psychology meet all three goals one day, if not now?
- Does the use of the scientific method justify psychology being called a science?
- According to Miller (1983), psychologists are 'dressing up' and playing at being a science. We are in fact a pseudoscience and this can be dangerous.
- How and why? Think of the implications...



HOWEVER...

- Not all of the goals of science may be appropriate for psychology.
- One such example is Humanism, which openly opposes the label of science.
- And, according to the social constructionists, Psychology cannot be a science.
- Moreover, using the scientific method can sometimes result in detrimental outcomes. Think for example of psychopathology or criminality – can we guarantee that a specific behaviour will arise?



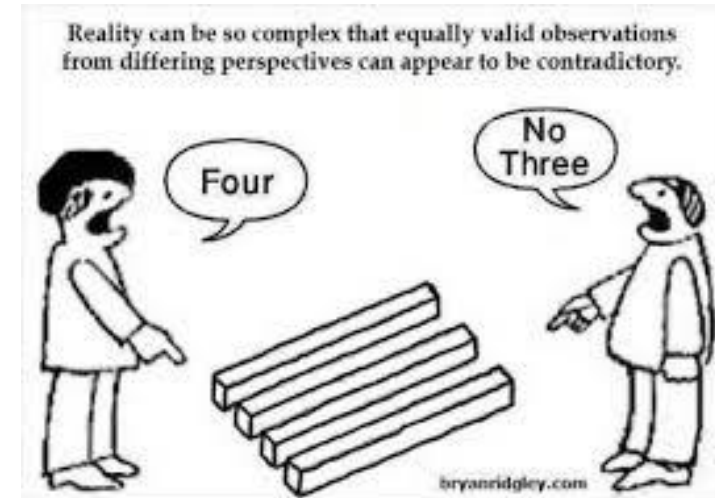
HUMANISTIC PSYCHOLOGY

- Psychology should not be classed as scientific because we are interested in understanding the uniqueness of human experience, which will be different for each and everyone of us.
- The humanistic approach advocates the idiographic approach, does not aim to make predictions, has limited scope for control and is concerned with UNDERSTANDING.



SOCIAL CONSTRUCTIONISTS

- Our knowledge of ourself and others is based on a social construction, therefore there is no **OBJECTIVE** reality to research that is beyond our culture.
- BUT... think about the ramifications of this- it could be far reaching for the future of psychology....
- According to Burr (1997), since there is no ultimate knowledge of human beings, the most we can do is to look to understand **CURRENT** ways of thinking.



PSYCHOLOGY AND PARADIGMS

- According to Kuhn (1962) a science must have an overarching theoretical orientation which guides research, practice and investigation.
- There are three stages involved in the development of a science:
 1. Pre-science, there is no clear paradigm, but much debate about the direction of a theoretical approach.
 2. Normal science, a generally accepted explanation and interpretation of all findings.
 3. Revolutionary science, new evidence from research creates a paradigm shift where the old science is replaced by the new paradigm.
- Where is psychology situated?



YOUR TASK

- In your designated group, research and find examples of the following terms in relation to the current debate-
- Triangulation
- Reliability
- Validity
- Parsimony
- Feedback your explanations to the rest of the group.



	Biological	Psychodynamic	Behavioural	Cognitive	Humanistic
Main assumptions: The causes of human behaviour are:	Hormones, neurotransmitters, structure and function of the brain, genetics.	Tripartite personality, psychosexual stages, the unconscious mind.	Born as a tabula rasa, no free will, all behaviour is learned (conditioned).	The computer analogy, mental processes cause behaviour, psychology is scientific.	Unconditional positive regard, genuineness, empathy. Human beings all have capacity to succeed/grow.
Methodology of measuring behaviour	Neuroimaging, animal studies, twin studies etc.	Case studies: Little Hans, The wolfman etc.	Laboratory, and field experiments, animal research.	Laboratory, field and natural experiments, case studies.	Phenomenology – subjective experience of the self. Q – sort.
Treatment methods	ECT, Psychosurgery, psycho-pharmacology.	Psychoanalysis, dreamwork, free association.	Behavioural modification.	CBT, DBT etc.	Person centred therapy.
Examples of empirical supporting research	Buss (1984), Bennett Levy & Marteau (1989), Jouvet (1967), Raine (2004).	Little Hans(?), Solms (2000), Erikson (1963), Bowlby (1944).	Little Albert (Watson, 1913), Pavlov (1927) Skinner (1938), Parsons & Rizzo (2008).	Loftus & Palmer (1974), H.M., Clive Wearing, Gotlib & Cane (1987).	Not empirical evidence, but Theory such as `Hierarchy of Needs, Subjective well-being.
Scientific or not?	Yes!	Unfalsifiable so...	Yes!	Yes!	No! and quite rightly so!

DEFINE THESE TERMS AND PROVIDE AN EXAMPLE IN PSYCHOLOGICAL TERMS

- Reliability
- Validity
- Parsimonious
- Reductionist
- Objectivity
- Replication
- Falsifiable
- Deterministic
- Holistic

- Qualitative
- Quantitative
- Variable
- Paradigm
- Prediction
- Control
- Experimental manipulation
- Controlled observation
- Hypothesis & Null Hypothesis