PSY1011 Week 1

Learning Objectives

- Define psychology
- Explain how science can safeguard against the major fallacies of human thinking
- Describe the features of psychological pseudoscience, and distinguish it from psychological science
- Identify reasons we are drawn to pseudoscience
- Identify the key features of scepticism
- Explain the basic principles of scientific thinking

What is Psychology?

The scientific study of mind, brain and behaviour.

- Brain: is the physical organ
- Mind: is the thoughts and the higher order thinking
- Behaviour: one of the most important studies under psychology.

In psychology, there is multiple levels of analysis.

- Multiple determinants.
- Inter-relationships. (people working together)
- Different for each individual. (how you perceive things, eg. Examination.. People react differently though each person receives the same questions.)
- Influenced by others.
- And cultural differences. (cross cultural, social psychology)

Psychology as a Science

Modern psychology is scientific.

Science: A toolbox of knowledge skills designed to prevent us from fooling ourselves.

- Public Knowledge: Willingness to share our findings with others.
- Objectivity: To attempt to set aside personal interest when evaluating the evidence for a scientific claim. (unbiased)

Scientific Theory: an explanation for a large number of findings in the natural world.

- Generate predictions regarding new data that are unobserved.
- Hypothesis: testable prediction derived from a theory.

Human behaviour is difficult to predict – therefore there is a need for multiple levels of analysis.

Levels of Analysis:

Social:

- Behaviour affects the social.

Behavioural:

- Mental symptoms affect the individual's behaviour.

- Depression: withdrawal

Mental:

- Showing symptoms.
- Depression: sad thoughts, suicidal thoughts.
- Mood.

Neurological/Physiological level:

- Differences among people in the size and functioning of brain structures.

Neurochemical level:

- Differences in levels of brain's chemical messengers that influence mood.

Molecular:

- The person's genes.

Naïve Realism: the belief that we see the world precisely as it is.

- Highlights that we cannot trust our common sense.
- 'seeing is believing' or 'believing is seeing'.

In daily life, Naïve realism serves us well. Although sometimes what appears to be obvious is wrong. Sometimes scientific research shows otherwise.

Common Sense?

This doesn't mean that common sense is always wrong. Our intuition usually comes in handy and guides us to the truth.

Eg. Our 5 second judgements of people tend to be right due to chance.

Common sense can also be helpful for formulating hypothesis that can later be tested.

What makes Psychology fascinating?

1. Human behaviour is difficult to predict – all actions are multiply determined.
2. Psychological influences are rarely independent of each other
- There is an array of variables that affect someone's behaviour.
3. There are individual differences – people can surprise us by their behaviour.
- Everyone responds differently to the same stimuli.
- Extrovert vs Introvert. (Albert Bandura)
4. Reciprocal determinism – people mutually influence each other's behaviour.
- Makes it challenging to isolate the causes of human behaviour.
5. Cultural differences – generalisations cannot be drawn on human nature.
- European Americans vs Asian Americans focus on different things in a picture.

Science or Pseudoscience

Pseudoscience: a set of claims that seem scientific but is not.

- Lack the safeguard against confirmation bias and belief perseverance
- Science is a process and not a set of belief

Adhoc Hypothesis: Assumption made in response to facts that are inconsistent with a theory in order to prevent the theory from being falsified. Cure is open minded scepticism.

Confirmation Bias: The tendency to seek out evidence that supports our own hypothesis, and neglect evidence that doesn't. The cure is open minded scepticism.

Belief perseverance: Tendency to stick to our original beliefs even when evidence contradicts them.

Logical / Bandwagon fallacies: Assuming that a claim is correct because many people believe in it – Astrology

Overreliance on anecdotes: Unreliable as anecdotes are affected by many unknown factors.

- Cure is to view empirical variable and observations.

Exaggerated claims: You need exaggerated evidence to support exaggerated claims. 'a ufo came and abducted a person'

- Cure is objective verification. 'if all of us have the same experience'. Then maybe they can formulate a theory.

Signs of a Pseudoscience

Overuse of Ad Hoc immunising hypothesis:

- Escape Hatch for theorists to prevent their theory from being contradicted.
- Eg. 'Psychics believe that ESP is real. But requires psychic powers. Hence becoming untestable.

Lack of self correction:

- Sciences will correct themselves, whereas Pseudosciences will deny all contradicting evidence.

Exaggerated claims

- Eg. '3 simple steps will change your love life forever.

Too reliant on anecdotes.

- Anecdotes are difficult to interpret as evidence.
- Eg. Weight loss programs
- No connection to research.
- Eg. 'amazing research shows that…'

No peer review

Why are we drawn to Pseudoscience?

- Finding comfort in our beliefs. Eg. Astrology gives people control over an unpredictable world.
- Make order out of disorder.
- Can lead us astray, as we perceive patterns that are not there.
- Terror Management Theory: awareness of our own deaths leaves a sense of fear – so we adopt reassuring cultural worldviews.

Logical fallacies: traps in thinking that can lead to mistaken conclusions

- Emotional reasoning fallacy: error of using our emotions as guides for evaluating the validity of a claim. E.g 'this idea makes me sad so i don't want to believe it'
- Bandwagon fallacy: error of assuming that a claim is correct, just because many people believe it. Eg. 'if everyone believes in astrology, it must be true'
- Not me fallacy: error of believing we are immune from thinking errors that afflict others. E.g 'other theories may be wrong, but mine is definitely right, because i made it.'
- Bias blind spot: lack of awareness of our own biases, coupled with an awareness of others' biases

Dangers of Pseudoscience:

Opportunity Cost – missing out an opportunity for effective treatment.

- When people believe things about a certain treatment, they miss out on an opportunity to do the proper treatment.

Direct harm – eg., Candace Newman – rebirthing

- Candace Newman died in the process of rebirthing. As a result of false beliefs.

Inability to think critically – global warming, parenting practices, etc.

Scientific scepticism

- Approach of evaluating all claims with an *open mind*, but insisting on *persuasive evidence* before accepting them.

Critical thinking

- Set of skills for evaluating all claims in an open-minded and careful fashion(AKA scientific thinking)

Principles of Scientific Thinking:

- Ruling out rival hypotheses (have important alternative explanations)
- Correlation isn't causation: Just because 2 things are associated with each other doesn't mean that one causes the other.
- Testability (a claim can be disproved)
- Extraordinary claims (require extraordinary evidence)
- Occam's razor – the simpler explanation is selected. 'Blind person spots a UFO at a frisbee tournament'. (logical simplicity – "shave off'' complicated explanations.
- Replicability: the finding must be capable of being duplicated by other researchers.