PSYU3351 Research Methods in Psychology

Lecture 1 – Introduction to the Scientific Method

UNDERSTAND & DESCRIBE WHAT IS MEANT BY 'SCIENCE'

The Science-practitioner model
- Science is important in more 'applied' fields
- Scientific method confirms your ideas/methods before you apply them

Psychology as a science
- Attempting to understand the world & its workings objectively
- Objectivity & Subjectivity
- Error-detection mechanisms: logical & empirical critical appraisal
- Empiricism: knowledge through experience
- Observation allows nature to criticise our theories
- Test it against the real world

DESCRIBE & EXPLAIN THE MAJOR STEPS IN THE RESEARCH PROCESS

Steps in the research process

1. **Finding a Research Question**
- Selecting a general topic, reviewing literature
- Picking something that: interests you, is achievable/practical/ethical, is in your long-term interests (career goals)

2. **From Theory to Hypothesis**
- Hypothetico-deductive method
- Hypothesis: a statement that describes or explains the relationship between variables
- Deductive reasoning: 'deducting' conclusions from premises
- Deducing specific hypotheses from general theory
- 'Testable predictions'
- Testable: the hypothesis is stated in such a way that the variables are observable, assessable/measurable
- Refutable: The hypothesis is stated in such a way that it can be shown to be false
- Positive: The hypothesis should state that some state of affairs exists (directional/non-directional)

3. **Defining & Operationalising Variables**
- Defining: What we will measure
- Operationalising: How we will measure it
    - E.g., Hypothesis: increase in playing violent video games is associated with increase in violent behaviour

4. **Identifying Participants**
- What population do you want to sample?
- Related to theory/hypothesis
- Psyc students, mothers, females, Greek people??
- Sample bias (WEIRDos, Western, Educated, Industrialised, Rich & Democratic cultures)

UNDERSTAND & APPLY THE DISTINCTION B/W DESCRIBING EVENTS & EXPLAINING THEM

5. **Select a research strategy**
- What questions are being asked?
- Describing events *(what is happening)*
    - Relationships between variables, e.g., is there a relationship between X & Y,
    - Prediction: Does X predict Y?
- Explaining events *(why is it happening)*
    - Attempting to infer causality, e.g., does X cause changes in Y?

RECOGNISE DIFFICULTIES ASSOCIATED WITH SCIENTIFIC RESEARCH (EG. BIASES)

Questions to keep in mind

- Conceptual point: Does my research aim to describe relationships between variables or explain them?
- Confusing correlation with causation: directionality, 3rd variable problem
- Correlational research can serve as a basis for explanatory research

6. Select a research strategy

- Correlational: Assessing the relationship between two or more variables
    - Scatterplots, assessing the strength of the relationship, directionality (+/-), linear/non-linear relationships
- Experimental: Attempting to infer causality
    - Manipulating some aspect of a situation to see what influence it has on other variables
    - Comparisons between treatment/control conditions

Experimental Method

- Independent variable (IV): 'manipulated'
- Dependent variable (DV): 'measure'
- Influence of the IV on the DV
- Experimental condition: receives IV (treatment); levels of IV
- Control condition: does not receive IV (comparison group)
- *Extraneous variables:* all other variables in the study
- *Confounding variables:* variables that may also influence the DV

Lecture 2 – Assessing Research

APPRECIATE AND UNDERSTAND WHY CRITICAL APPRAISAL OF RESEARCH (SCIENCE) IS IMPORTANT

Critical Appraisal

- Is important for any members of the general population
- Particularly important for psychologists/psychology researchers
- Correlational research can tell us if things are associated but not if they cause one another
- 'Reproducibility crisis' if an effect can't be reproduced it may not be a real effect or finding it may just be only a one time or population dependent effect.
- Research Results → Read by practitioners → Applied to clients → Problem solved!
- Critical appraisal of research is an important skill for:
    - Practicing psychologists
    - Psychological scientists (researchers)
    - Anyone!

The Scientific Method

- Conclusions based on quantifiable and reproducible evidence
- Threats to validity:
    - Threats to **Internal Validity**: are the results due to what the authors think they are? Is there an alternate explanation(s) for the results?
    - Threats to **External Validity**: can the results be generalised (beyond this specific sample)?
- Poor quality research is a waste of time, biased and misleading

Critical Appraisal

- Balanced assessment of strengths of research against limitations
- Assess process of research plus the results of research
- Must consider all aspects of research:
    - Aims
    - Methods used
    - Conclusions and implications
- Important to critically review research:
    - Whether to 'believe' an effect
    - Whether to build your (future) research upon past findings
    - Whether to use a particular therapy or intervention for your clients