



RESEARCH METHODS I

Validity in Research

VALIDITY

The extent to which an effect demonstrated in research is genuine and not produced by other spurious variables that are not part of the study (and not limited to a specific context).

VALIDITY IN RESEARCH

Validity is important because it concerns whether conclusions from our research are correct.



Need to consider sources of errors that may result in us thinking we:

Found an effect when it is not there

Did not find effect when it was there

EXAMPLE



Question:

Does heat result in heightened aggression?



Design:

Put some people in a hot room, others in a cold room



Measures:

Give a Q to measure feelings of aggression

EXAMPLE



Results:

Those in the hot room reported greater aggression



How certain are we that temperature was the cause?



What alternative interpretations could we consider?

SOURCES OF VARIANCE

- **Error Variance**: unintentional and random differences between aspects of investigation
 - Difference in memory recall ability for a sample of 20 people – will likely vary
 - In a perfect study there would be no error variance
 - The effect on the DV would only be as a consequence of the manipulation of the IV – Systematic variance
 - HOWEVER, this is not the case in real-world research

TYPES OF VALIDITY

Statistical conclusion validity:

- Fluke, data entered incorrectly, incorrect statistical analysis conducted

Internal validity:

- Did manipulating the IV cause the changes observed in the DV?
 - If 'yes' then we have internal validity
 - However, is that the whole picture?.....

EXAMPLE

Does chewing gum improve memory?

- Design: Test people on a list of words they have learned in a control condition
- Then test on new words while chewing gum
 - Memory improves in the second condition
 - The researcher (incorrectly) comes to the conclusion that chewing gum improves memory
 - Can we say this study has internal validity?
 - What are the issues?

TYPES OF VALIDITY

Construct validity:

- Construct: tool used to facilitate understanding of human behaviour (label for domain of behaviours)
- Related to aspects such as cognition, emotions, attitudes, personality characteristics, intelligence
 - E.g., conscientiousness, anxiety, semantic memory
- Concerns how closely our interpretation of a construct is related to a real thing.
- Sometimes an effect occurs when IV is manipulated but not for the reasons the researcher thinks.

TACKLING CONFOUNDS

- Need to aim to control/remove any confounds in our research studies
 - Even if they do not have an effect on the DV
 - Why – we need to produce refined theories
- Particularly important when research findings influence treatment of people in the real-world

THREATS TO VALIDITY

Experimenter/Researcher Expectancy Effect

- Researcher may themselves be a confound
- Inadvertently convey what they expect to happen
- Through instructions, subtle behaviours, facial expressions, etc.

Participant Expectancy

- Some participants may feel they want to get the 'right'/'correct' results for the researcher
- Feel their behaviour must change due to the study

THREATS TO VALIDITY

Demand Characteristics

- If participants try to behave in a way they think is expected, they would need to know what is required
- Orne (1962): argued there are cues in research that give an idea of what the study is about, what behaviour is being studied and the changes expected
- Participants may use these and alter behaviour accordingly
 - What issues present themselves here?

THREATS TO VALIDITY

Evaluation Apprehension

- Some participants may feel anxious about their performance being under scrutiny in a research study (Rosenberg, 1969)
- Social desirability suggest people want to 'seem good' to the researcher (Riecken, 1962)
- However, do participants behave in a way that shows them in the best light or in a way they think are required in a study?

DEALING WITH THREATS TO VALIDITY

- ‘Nuisance’ variables that interfere with interpretation of results can and should be avoided through careful:
 - Design
 - Attention to procedures
 - Types of materials used

DEALING WITH THREATS TO VALIDITY

Standardised Procedures:

- **Tightly controlled steps to ensure every participant undergoes the study in the same way**
- **Used to avoid researcher bias/expectancy effects**
- **Involves producing a careful set of instructions**
- **Both for the researcher to follow during the study**
- **And instructions given to the participants**

DEALING WITH THREATS TO VALIDITY

SINGLE-BLIND PROCEDURE

Procedure organised to keep participants unaware of the condition of the study they are taking part in

DOUBLE-BLIND PROCEDURE

Both participant and researcher are unaware of the condition participants are placed into

VALIDITY IN RESEARCH

External Validity:

- Can effects demonstrated in a study be generalised beyond the study context:

From the
specific sample
to others

**Population
validity**

From the
research setting
to others

**Ecological
validity**

From time
period of testing
to others

**Historical
validity**

VALIDITY IN RESEARCH

Replications

- But these come with their own problems

Meta-analyses

- Statistically analyse the results of multiple equivalent studies of the same/similar effects
 - Uses secondary gathered data from studies that collect primary data