

Research methods are good for you!

Don't you just love your research methods and statistics lessons??

Research methods and statistics develop transferable skills:

- Challenge statistics
- Challenge 'scientific' claims:

Millions of Brits have more than the average number of fingers!!!!

Average = 9.99?? = mean

..... or should that be the mode?

Need to use an *appropriate* measure of central tendency

In research methods you develop the:

'ah but' mentality

So you can query:

- claims in advertisements
- claims by politicians
- the nature of any evidence

Report in The Guardian (1998)

Is there a correlation between using the Internet and getting depressed?

Positive correlation: depression and loneliness

Negative correlation: social contacts and communication with family

The Guardian journalist said:

"...one hour a week on the Internet **led to** an average increase of 1% on the depression scale....."

Kraut, R., Patterson, M. & Lundmark, V. (1998) Internet paradox: A social technology that reduces social involvement and psychological well-being? *American Psychologist*, 53 (9) 1017-1031.

Great news! 25 % of maths teachers to go in next ten years!

Is this really a worry?

Making mathematics count: The Department for Education and Skill's response to Professor Adrian Smith's Inquiry into Post-14 Mathematics Education (2004)

...now, about this methods exam

Most of you (not all) need to say more than you think you should!

AQA Spec A – Social psychology and research methods

An old AQA question:

Researchers were interested in whether experience on a driving simulator could help people learn to drive real cars. They randomly allocated a number of learner drivers to either a control group or one where extra hours on a driving simulator were provided. They measured the number of hours driving each learner required to reach test standard.

AQA Spec A exam papers to be found at:
http://www.aqa.org.uk/qual/qceasa/psya_assess.html

Be specific

IV = Training type: Control group - normal learning
 Experimental group- simulator experience
 DV measure: Hours to reach test standard

Q: What is the predicted outcome of this research study? (2)

Bad: The simulator group will learn faster

Good: The simulator group's mean number of hours to reach test standard will be lower than the control group's mean number of hours.

Shotgun answers



Repeated measures, independent measures, matched pairs

Give one advantage of using questionnaires

Questionnaires are cheap, easy to administer and gather a lot of information.

(compared with??)

Give one advantage of field experiments

??? Field experiments are good because people are in their natural environment; they don't know they are being observed.

An advantage of field experiments is that people are engaged in everyday activity; this means that their behaviour is not special or artificial as in a laboratory.

| | Advantage | Disadvantage |
|------------|---|---|
| Laboratory | <ul style="list-style-type: none"> •Control of variables •Can test participants in several conditions •Can use non-portable technical equipment | <ul style="list-style-type: none"> •Participants are constrained •Task may be artificial •Can't observe discreetly |
| Field | <ul style="list-style-type: none"> •Can set up conditions without participants being aware •Participants go about everyday business- less susceptible to experimental pressures and demand characteristics. | <ul style="list-style-type: none"> •Difficult to control all variables •May not be able to use participants in all conditions •Can't use complex equipment |

Contextualised questions

e.g.

"why might the researcher prefer to use a questionnaire *in this study?*"

Q: What was the independent variable in this investigation? 1 mark

A: The independent variable is the variable manipulated by the experimenter.

No Mark!!!

The independent variable was driver training

| INDEPENDENT VARIABLE | DEPENDENT VARIABLE |
|--|--|
| IVY | DEVI |
| What the experimenter manipulated | What measure changed as a result |
| The 'conditions' or groups | What they produced |
| Values known before data are gathered | Values known only after data are in |
| The 'cause' | The effect |
| | Must be operationalised!!!! |

Broad brush answers



Q: 'Describe one advantage of using a questionnaire'

A: 'Questionnaires can gather a lot of data'

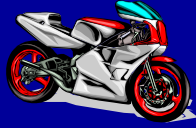
Q: What else might explain the difference found between trained and untrained drivers?

A: "The drivers might be nervous."

Doesn't explain the *difference*

Relate to the research study

Q: What else might explain the difference found between trained and untrained drivers?



A: "Some of the drivers might have had experience on motorbikes"

X

Yes but which????

A: "More of the simulator condition drivers might have had experience on motorbikes."

Findings and conclusions

Q: What might the researchers conclude from the outcomes of this study?

Bad:

The researchers concluded that the simulator group took fewer hours to reach test standard than the control group.

(this is only what happened with the *samples*)

Good:

Simulator training is effective in reducing time to reach test standard.

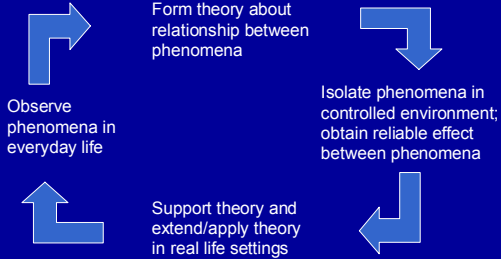
(this is what we might conclude about the *populations*)

"The theory was supported that....."

Early2

Good Luck!

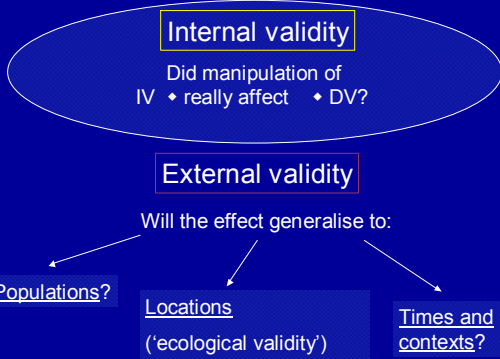
Artificiality of the laboratory experiment?
Relationship between theory, controlled research environment and real life settings



So of course psychology experiments are 'artificial' and rightly so!

end

Internal and external validity



Milgram or Hofling – which is more ecologically valid?

Milgram's results replicated in many different ways and in many differing environments, not least, in basement of private company rather than in prestigious university.

Hofling's result never completely replicated. Rank and Jacobson (1977) showed how 'artificial' Hofling's study was - when nurses allowed to talk with peers and familiar with drug no obedience effect.

Point is:

Don't use knee-jerk - "If it's in natural surroundings it *must* be more valid"

Instead, think about what the threats to validity *are*
e.g consider:

- Playing in the University 'laboratory'
- Playing in the local primary school playground
- Playing in the prep school garden

Christian Dior once advertised a fat reducing gel ('Svelte') and claimed that a sample of 550 women using it daily for one month produced the following results:

52% lost up to one inch from their hips
(56% from thighs; and from waist)

Note the term 'lost up to...'

How do we know?

Presumably measured hips before and after 1 month's use

What will happen if Svelte gel is useless?

Take any two measurements twice – slight difference

Some differences will be positive some negative – *if random*

Hence about 50% up and 50% down !!!

Also people prefer reporting positive to negative. We don't know how many of the 550 women responded – perhaps more who lost weight.

Also we don't know what other measures they took and didn't report
