

Research Methods

ECPS4002

Lecture 1: Introduction / Measuring People

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Learning outcomes

Upon successful completion of the module, students will be able to:

- Demonstrate an understanding of appropriate conventions for academic writing in psychology;
- Demonstrate an awareness of various qualitative and quantitative research methods and their applications;
- Understand the principles of ethical research; and
- Recognise and use appropriate methods of collecting, describing and analysing simple research data

Module Structure

- Lectures every Wednesday between 9am and 11am in Mumbles

Introduction of theory, elements of skill that you will learn, etc

- Workshops every Wednesday between 11am and 1pm in TK147/149

Practical! You will be 'doing' things every single week in these workshops – collecting data, analysing data, practising new skills and discussing issues with your peers

Why do research methods and statistics matter?

- Important for your degree
 - You won't get one unless you develop these skills!
 - BPS accreditation / QAA benchmarks
- Important for good research
 - Your career beyond your degree
 - Moral and professional responsibility
 - Satisfy funding bodies, e.g., charities, government, etc.

The British Psychological Society (BPS)

- **The BPS** - professional body (incorporated by Royal Charter) for Psychologists in the UK
- **Accreditation** of education and training in Psychology for over 40 years
- Eligibility for **Graduate Basis for Chartered Membership (GBC)**
 - Accredited degree course
 - Degree classification of lower second degree with honours (2:2) or above



The British Psychological Society

Biological psychology	E.g. biological bases of behaviour, hormones and behaviour, behavioral genetics, neuroimaging, neuropsychology, brain imaging and evolutionary psychology
Cognitive psychology	E.g. attention, perception, learning, memory, thinking, language, consciousness and cognitive neuropsychology
Developmental psychology	E.g. childhood, adolescence and life-span development, attachment, cognitive and language development
Individual differences	E.g. personality, psychological testing, intelligence, cognitive style, emotion, motivation, mood, mental health, gender and race/ethnicity
Social psychology	E.g. social cognition, attribution, attitudes, group processes, close relationships and social constructionism
Conceptual and Historical Issues in Psychology	E.g. psychology as a science, conceptual issues, historical paradigms and models, political and ethical issues in psychology, integration across disciplinary perspectives
Research methods	Research methods in psychology: • Research design • The nature and appropriate statistical analysis of data • Psychometric and measurement techniques • Quantitative and qualitative methods

Academic Writing Standards: Recap

1. ALWAYS follow the APA 6th style of reporting and referencing for all of your Psychology assignments



Key point 1:

Get used to always acknowledging the sources of information you have used in any assignment through correct referencing and citing.



Academic Writing Standards: Recap

- 2. DO NOT use first person in your academic assignments
(except for reflective work...)

I.e., "I think", "we conducted a study",
"our study found"

Also, "us", "your", "we"



Key point 2:

Use third person at all times when writing academically. Only use "I" when you are asked to write **reflectively**

Academic Writing Standards: Recap

- You will need to do a lot of reading!
- Your achievement will suffer if you do not undertake independent reading to consolidate your learning



What should I be reading?

Books about broad topics

Edited books about specific areas of research

Journal articles about specific issues



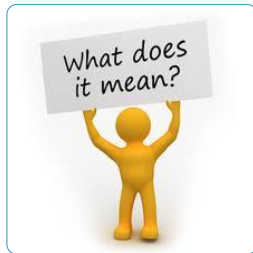
- DO NOT! Use NON-peer reviewed sources!!

e.g., Wikipedia, SimplyPsychology, Psychology.about.com or anybody's blog page!

Key point 3:

NEVER cite or reference lectures in your essays or exams

Critical Thinking



What is Critical Thinking?

- A process that evaluates ideas through the testing of statements (accuracy) and the soundness of reasoning behind them
 - Not accepting everything you read at face value!
 - Training your mind to think differently

What else would we like to ask this magazine about this statement?

30%... is how much more likely you are to be depressed if you watch more than 3 hours of TV a day"

Zest Magazine, 2012

How reliable is this source??

Thinking
Critically
means...

1. Examining different viewpoints
2. Learning to think from different perspectives
3. Viewing those opinions that are different from yours
4. Avoiding automatic responses

So – what can you do?

- Keep an open mind
- Identify key issues and raise questions
- Obtain relevant facts
- Evaluate the findings and form judgements

What can we KNOW?

"I get frustrated with my Psychology classes. We study the 'theory' of this and the 'principle' of that. Aren't there any laws? Why can't psychologists make up their minds and stop acting like they don't know anything for sure?"

The use of literature in your assignments

- You need to research the question and the answer



- Find evidence that directly relates to the project title
- Literature in Psychology is complex...
- Many sources offer differing opinions – you are looking for as many opinions as possible to present a **balanced** argument and to come up with your own **informed** opinion.

2

- Your work throughout your degree will draw upon evidence from research studies
- You will judge theories, models, principles, statements, etc. In Psychology based upon research evidence that supports (or does not support!!) them.

3

- If you don't understand a concept or argument, find something that explains it in a way that you can understand
- But then bring that understanding forward again to the article you are using

4

- A single piece of research cannot just be considered on its own
- It is important to view the piece in its relation to a broader picture



A research study can be viewed as a piece of a mosaic – the pattern only emerges when standing and looking at the mosaic as a whole!

The Assessments

Assessment	Due date
1. 1,500 word quantitative report – calculating and reporting a t-test exploring the recognition of faces	12pm Tuesday 13th March 2018
2. 1,500 word quantitative report – correlation exploring sensation seeking and risky driving behaviour	12pm Tuesday 1st May 2018
3. 1 hour open book exam	May 2018
4. 4 hours research participation plus 500 word reflective log	12pm Tuesday 27 th March 2018

Assessment 4

4 hours research participation

- 4 hours = 16 credits
 - 1 credit per 15 minutes
- You should all have attended EMS training and started to collect credits by now – failure to attend the training means you cannot complete this element of assessment and you will be required to write an alternative essay

500 word reflective log

- Details of the studies you have taken part in
- Considering of any design issues
- Consideration of potential ethical issues
- Reflection upon your **own** experience of taking part in these studies - i.e., you can use "I"!

Formative Assessments

Monitor student learning and provide ongoing feedback

Helps the lecturer! We can address issues much quicker with formative assessments

Identify strengths and weaknesses

Not graded; do not contribute to final module mark.
BUT still very important for your own learning

1. 120-150 word abstract of a research report
 - ❖ Read an article – provide a summary in the form of a psychology paper abstract



To be submitted by **Friday 16th February** – brief feedback by Friday 23rd February

2. The method jigsaw



Ongoing throughout the semester – you will be provided with immediate feedback and tries are unlimited

3. Qualitative thematic analysis on a provided transcript



To be submitted by **Friday 23rd March** – brief feedback by Friday 30th March



Measuring People

Outline

- Different types of research
 - Strengths and weaknesses
- Measuring and defining variables
- Introduction to reliability and validity
- Operational definitions
- Sampling
- Qualitative/quantitative debate

Why are research methods important?

Importance of research methods

- Psychology is regarded as a science
 - Science (at a basic level) attempts to answer questions through careful observation and collection of data
- These answers can then be used to further our knowledge of us (humans) and of our world
 - As well as then helping us to predict subsequent events and behaviour
- BUT to do this, we require a systematic/universal way of collecting and understanding data

Importance of research methods

- Methodology helps us understand and evaluate the merit of all the information that we are confronted with every day

- E.g., do you believe the following?

- Chocolate makes children hyperactive
- Smoking is linked to poor grades in teenagers
- Right handed people live longer than left handed people

How?

Where?

Why?

What?

What is RESEARCH?



Research methods in psychology

- Qualitative versus quantitative
- Basic versus applied research
- Experimental versus non-experimental

Qualitative vs. Quantitative

Qualitative



Free text/words

Quantitative



- Numbers
- Categories or continuous
- Nominal, Ordinal, Interval, Ratio

Qualitative research

○ Qualitative research:

- We are interested in the specific experiences of our sample
- The 'life-world' of the participants we interview etc
- We **do not** attempt to generalise to larger populations

Quantitative research

○ Quantitative research:

- We are not really interested in the sample that we study – we are interested in the **target population**
- We want to be able to generalise our results to this target population

Methods of Research

Naturalistic observations

- Researcher observes a behaviour as it occurs in a natural setting, and attempts to avoid influencing that behaviour
- Nothing is manipulated in the observation
 - This method is used when there are variables that cannot be directly manipulated for ethical or practical reasons
- Not 'true' experiments – quasi experiments because researched cannot determine a true cause and effect

Naturalistic observations

Habituation: the process in which people typically adapt to and ignore the presence of an observer as time passes

Advantages

- ✓ Behaviour can be observed in natural settings with little or no influence
- ✓ No artificial labs, no uncomfortable or inaccurate behaviour

Limitations

- ✗ Cannot establish a causal relationship
- ✗ Very little control over other variables

Descriptive reserach

- Seeks to identify how humans and other animals behave, particularly in natural settings
- Case Studies: an in-depth analysis of an individual, group, or event

Descriptive research

Advantages

- ✓ Researchers can gain in-depth, detailed information about their question of interest
- ✓ Case studies can provide new ideas or challenge existing theories

Limitations

- x Cannot determine cause-effect relationships
- x Difficult to generalise findings
- x Lack of objectivity in collecting and interpreting data

Lab experiments

- Conducted in a special environment where variables can be carefully controlled
- Participants are aware that they are taking part in an experiment
 - They may or may not know the true aims of the experiment...

Lab experiments

Advantages

- ✓ Well controlled
- ✓ Permits the study of cause and effect
- ✓ Confounding variables are minimised
- ✓ Can be replicated (copied/repeated)

Limitations

- ✗ Artificial or contrived
- ✗ Participants know they are being studied, which is likely to affect their behaviour
- ✗ Researcher may influence results
- ✗ Setting is not like real life
- ✗ Doesn't represent real life experiences
 - ✗ E.g., trigrams to test memory

Survey research

- Information about a topic is obtained by administering questionnaires or interviews to many people
- Types of surveys/questionnaires:
 - Cross-sectional
 - Longitudinal/prospective
 - Able to follow up over time
 - Allows prediction about causality
 - Randomised controlled trials
 - Gold-standard in psychological research

Survey research

POPULATION:

- All of the individuals that we are interested in drawing a conclusion about

SAMPLE:

- A subset of the individuals drawn from the larger population

Survey research



How do we get a **representative sample**?

Say, for example, we are interested in exploring levels of depression in individuals who own dogs...

What would we need to do?

Survey research

Advantages

- ✓ Allows us to collect large amounts of data quickly and inexpensively
- ✓ We can ask about an almost limitless variety of attitudes, perceptions, experiences

Limitations

- ✗ Unrepresentative samples can produce distorted results
- ✗ Self-reports can be biased – people may not want to admit their attitudes or behaviours
- ✗ Cannot indicate causation

Sampling

- If all members of a population were identical, the population is considered to be **homogenous**
 - That is, the characteristics of any one individual is the same as the characteristics as any other individual (little or no variation among individuals)

- Sampling is the process of selecting individuals (participants/ a sample) to provide an adequate description and robust inference of the population
- The sample we choose should be **representative** of the population

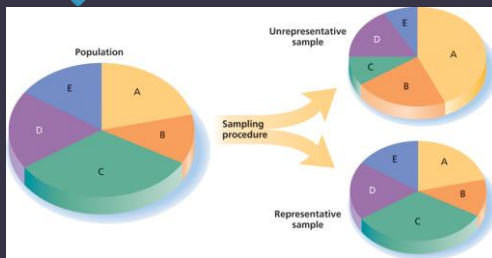
Representative samples

- A **representative sample** is one that reflects the important characteristics of the population

Dog owners and depression study

- Population of interest? → Every single dog owner!
- Sample? → We can't ask questions of EVERY dog owner, so we take a sample of this population

Representative samples



Samples

- In psychological research, we are interested in people!
- Who we include in our research studies is hugely important for the validity of our research findings
- Sample size is extremely important in statistical analyses

Types of sampling

- What about if you just select participants from who is available at the time to complete your study?
- This is called an **opportunity or convenience sample**
- But what then about the people who aren't available?

✓ Easy in terms of time and therefore money

✗ Can produce biased samples

Types of sampling

- Likewise, a sample of **volunteers** are a self-selected sample
 - May have their own reasons for volunteering
- Does not always include willing volunteers, though
 - And all participants come with their own biases and expectations!

Types of sampling

Random sampling/selection

- Selection process with no pattern
- Every individual has an equal probability of being selected for a study
- Reduces the likelihood of research bias
- Names are usually selected from a computerised list

Why assign/choose participants randomly?

Samples that are assigned randomly are most likely to be truly **representative** of the population under consideration

Research methods in psychology

EXPERIMENTAL VERSUS NON-EXPERIMENTAL

Experimental vs. non-experimental

Characteristics of experiments:

1. Researcher manipulates (controls) one or more variables
2. Researcher measures whether this manipulation influences other variables
3. Researcher attempts to control extraneous factors that might influence the outcome of the experiment

Experimental vs. non-experimental

- The experiment is generally assumed to be the most reliable and effective method for demonstrating that one variable has an effect on another variable to change
- The term **VARIABLE** is used to describe the empirical object or phenomenon that we are observing

Example 1

We are looking to research *the effects of a new drug on panic disorder*.

1. What are the variables in this research question?
The drug; levels of panic in individuals with panic disorder
2. What can we manipulate/control? How?
Who gets the drug and who doesn't – assigning people to two groups
3. How can we assess if this influences levels of the disorder?
Evaluate whether the group of participants who received the drug experience less symptoms/panic
4. What other factors could have an impact that we have **not** included?
Existing levels of severity of panic disorder; lifestyle choices; family backgrounds; support networks; etc; etc; etc

Defining variables

- Two main types of variables used in experiments:

1. Independent variables
2. Dependent variables

Plus – confounding or extraneous

1. Independent variable (IV)

- The factor that is manipulated or controlled by the researcher in order to determine their effect on a given behaviour
- A variable that influences a certain behaviour OR accounts for differences in a certain behaviour
- The IV should **NOT** be influenced by anything else in your study!



1. Independent variable (IV)

e.g., simple IV's:

Gender
Age

e.g., psychological constructs:

Personality type

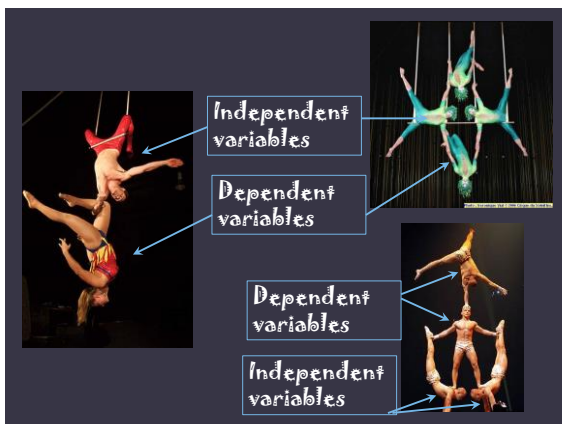
Researcher choose
what manipulations
to put in place

2. Dependent variable (DV)

- The factor that is measured by the researcher and the variable that may be influenced by the independent variable

The DV ***depends upon*** the IV!

EFFECT



Identify the IV and DV from these statements...

1. Alcohol makes you depressed
2. Frustration causes aggression
3. Men score higher than women in maths
4. Chocolate makes children hyperactive

IV (cause)	DV (effect)
Alcohol	Falling over
Level of frustration	Display of aggressive behaviour
Gender	Results of maths test
Whether child has chocolate	Level of hyperactivity

Study examples

Who uses Facebook more – men or women?

DV

IV

Are extraverts more likely to use Facebook than introverts?

DV

IV

Study examples

In these examples...

- Levels of Facebook use DEPENDS UPON gender
- Levels of Facebook use DEPENDS UPON personality type




HOW ARE WE MEASURING 'FACEBOOK USE'??

BUT!!!!...

How many different ways could we define 'Facebook use'?

This is where OPERATIONAL DEFINITIONS come into play!

How are we measuring 'Facebook use'?

- No. of times a week the person logs on to Facebook?
- No. of hours spent on Facebook each night?
- Self-report measures of Facebook use
 - NB: could be subject to self-report measures/social desirability bias!
- No. of tagged photos...

SO! It is very important to think carefully about what exactly we want to measure.....

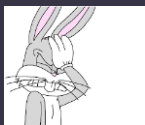


Plus – consider extraneous and confounding variables

1. Extraneous variables...

Other variables which are present during the study which shouldn't effect the study but could potentially become a confounding variables

e.g., noise level, temperature, lighting...



2. Confounding variables...

Other variables which we **should** have controlled for but didn't... and that could actually explain the outcome of your experiment or study

e.g., age, socio-economic status...

Summary

- There are many ways to explore research questions in psychology
- Have to weigh up the benefits and limitations of each approach, and each method used
- Must make sure the design you choose will enable you to answer your research question, and reject or accept your hypotheses (more on this soon!)
- Choosing variables and defining these operationally is important!

NB: BPS's code of human research ethics

- [https://www.bps.org.uk/sites/beta.bps.org.uk/files/Policy%20-%20Files/Code%20of%20Human%20Research%20Ethics%20\(2014\).pdf](https://www.bps.org.uk/sites/beta.bps.org.uk/files/Policy%20-%20Files/Code%20of%20Human%20Research%20Ethics%20(2014).pdf)
- And up on Moodle – read it!!

Coming up...

- Workshop this week – ethics in psychology
- Next week:
Lecture: Experimental and Non-experimental Designs
Workshop: Design Issues in Psychology
