

## Recap prep: Experimental methods

### Task 1: Types of experiments - Controlled/Lab, Field Natural and Quasi experiments

➤ You looked at the types of experiments at the beginning of term so you can complete the following questions to test yourself or read the relevant pages in the Research Methods pack, then answer the following questions:

1. What is the difference between a lab experiment and a field experiment?
2. What is the difference between a quasi experiment and a lab experiment?
3. For each of the studies below, identify which type of experiment they are:
  - a) A researcher observes the aggressive behaviour of children in a playground who have either regularly attended day care or who have been raised at home.
  - b) A researcher asks 50 children to watch a video of an adult punching a teddy bear. He then asks 50 children to watch a video of an adult cuddling a teddy bear. The children are then shown into a room with a teddy bear and told they can play with it. Does the video they watched influence how they play with the teddy bear?
  - c) A researcher wanted to investigate whether males or females differed in their ability to remember a list of 50 words. He gave them 2 minutes to study the list of 50 words then asked them to recall them in any order.
  - d) A researcher wanted to investigate whether people are more likely to obey an authority figure than another member of the public. A confederate dressed as a Security Guard approached people in a high street and told them to pick up litter. Another confederate dressed as a civilian did the same. The researchers then compared the amount of litter that was picked up by the members of the public.

### Task 2: Experimental designs – Repeated measures, independent groups and matched-pairs designs.



[https://www.youtube.com/watch?v=YnTuI\\_0Ha\\_Y](https://www.youtube.com/watch?v=YnTuI_0Ha_Y)

NOTE- in the clip he uses the term transfer effects we call these **ORDER EFFECTS**

➤ Read about experimental designs in the pack and watch the clip above, then have a go at the following activity:

*For each of the following experiments, state whether the design is independent groups, repeated measures or matched pairs.*

1. Boys and girls are compared on their IQ scores
2. Hamsters are tested to see if one genetic strain is better at finding food in a maze than another
3. Reaction time is tested before and after a reaction time training activity to see if test scores improve after training
4. Students are put in pairs based on their GCSE grades, and then one member of the pair is given a memory test in the morning and one in the afternoon.
5. Three groups of participants are given different word lists to remember, in order to find out whether nouns, verbs or adjectives are easier to remember.

Continued on next page.

Answer the following two questions:

One issue with independent groups design is individual differences. How do we deal with this?

One issue with repeated measures design is order effects. We deal with this using counterbalancing, what is this?

### **Task 3: Hypotheses, variables and controls**

➤ Read the relevant pages in the pack (**NOT writing correlational hypothesis section**). Also, watch this video on hypotheses - [https://www.youtube.com/watch?v=1CO\\_Ujb26KI](https://www.youtube.com/watch?v=1CO_Ujb26KI).

Once you have done this answer the questions below:

A) For the following scenarios: highlight or label the IV and DV, then identify which type of hypothesis

1. There will be a difference in the reaction times, in seconds, of participants who have drunk alcohol and participants who have not drunk alcohol
2. People will be more likely to help a victim of theft when the victim is female rather than male.
3. People who watch aggressive films will be in a significantly worse mood, as measured on a rating scale, than those who watch non-aggressive films.
4. There will be no difference in the amount of football boys and girls play
5. There will be a significant difference in the number of cigarettes smoked during a stressful situation compared to a non-stressful situation.

B) For the research aim below: operationalise the IV and DV, write a non-directional/two tailed hypothesis and suggest one possible EV.

*A researcher wants to investigate whether students will work better in a quiet or noisy environment.*

*(Note: If you need additional help, look back over the writing hypotheses section in the pack)*

Operationalised IV =

Operationalised DV =

Non-directional hypothesis =

One potential EV =

### **Task 4: Revision flashcards:**

Make flashcards for all the new terms you have learnt during this Prep (if you are not sure, look at the list on the next page)

**NOTE:** You can use actual cards or go to [www.quizlet.com](http://www.quizlet.com) to make them online.

*Quizlet is a great tool - not only can you copy and paste info to make the cards saving valuable time but it also makes tests and games for you to test yourself!*

### **List of key terms related to experimental methods**

#### Experimental method

- Experimental condition
- Control condition
- Lab/controlled experiment
- Field experiment
- Natural experiment
- Quasi experiment

#### Experimental design

- Matched-pairs design
- Independent groups design
- Repeated measure design

#### Aims and Hypotheses

- Aim
- Null hypothesis
- Experimental hypothesis
  - Non-directional/two-tailed hypothesis
  - Directional/one-tailed hypothesis

#### Variables and Controls

- Independent variable (IV)
- Dependent variable (DV)
- Extraneous variable (EV)
- Confounding variable (CV)
- Participant variables
- Operationalisation of variables
- Demand characteristics
- Investigator effects
- Order effects
- Random allocation
- Counterbalancing
- Randomisation
- Standardisation