

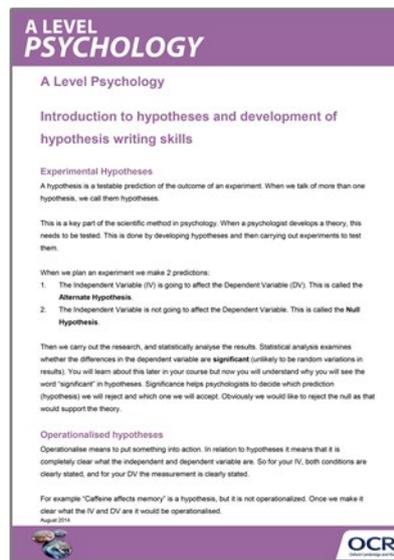
A LEVEL PSYCHOLOGY

Lesson Element

Introduction to hypotheses and development of hypothesis writing skills

Instructions and answers for teachers

These instructions should accompany the OCR resource 'Introduction to hypotheses and development of hypothesis writing skills' activity which supports OCR A Level Psychology.



The Activity:

The aim of this lesson element is to introduce hypotheses and to develop hypothesis writing skills.

Objectives:

- Students will be able to write operationalised alternate and null hypotheses from stimulus material.
- Students will understand and be able to produce one and two tailed hypotheses.
- Students will be able to write operationalised alternate and null hypotheses from a research question.



This activity offers an opportunity for English skills development.



This activity offers an opportunity for maths skills development.

Associated materials:

Student task sheet and Hypothesis writing guide.



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This lesson will need students to have a good understanding of experiments and variables to be able to engage with the concepts and tasks involved. Ideally this lesson would be sequenced soon after students have mastered their understanding of independent variables, conditions and dependent variables. It should be possible to complete in a one hour lesson but this will vary with the confidence level of the students.

Writing hypotheses is a key skill in psychology where precision and clarity are important. This lesson is a structured task which should give students an opportunity to practise this skill. Students often write garbled hypotheses, getting them confused with aims or research questions. They often put them in the past tense. That is why this lesson involves the use of writing frames as this helps to eliminate all of these issues.

This lesson is very hand-out driven but in this particular area of research methodology it works well. There are two hand-outs. The student task sheet and the hypothesis writing guide. The student task sheet is the focus of the lesson and contains four tasks. The hypothesis writing guide will help in the tasks, but it is also envisaged that it will be a useful resource for the future, so it may be worth printing it on coloured card.

The tasks can be delivered in a number of ways depending on your teaching style, student characteristics etc. It could be all within the classroom or reading the first page and completing Task 1 could be set as homework to be discussed in the lesson as an introductory activity. Tasks could be set for individual focus, paired work or small groups. Randomly selecting students to read out their answers is a good way to maintain focus. Asking another student to then evaluate the first student's answer and to suggest improvements (if possible) can be valuable also. Task 4 could be used as a homework task.

Obviously read all the hand-outs thoroughly. Trying to complete the student tasks yourself before looking at the teacher version can be very useful preparation.

On task 2, it may help the students who are struggling with this activity to identify a word such as 'lower' or 'increases' that suggest the hypothesis is one-tailed.

Task 4 is the one which is probably the trickiest for students and it may be worth giving an example for the first research question to show the process involved.



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Different textbooks/teachers can vary in their preferred hypothesis writing style. The hypotheses suggested here may be more formal than in some textbooks but it is better to prepare the students to the highest standards in case they wish to study Psychology at a higher level.

As a stretch and challenge activity, those who have completed the tasks could come up with their own examples of research questions and swap with a partner. The partner could then identify the IV and DV, operationalise them and then write hypotheses.

There are many ways to construct a hypothesis so these suggested answers are not definitive. As long as students stick to the key guidelines they should produce good hypotheses.

Task 1

Example:

A researcher is interested in whether caffeine affects memory. He gives one group of participants a can of coke to drink then 30 minutes later he gives them one minute to learn a list of 15 everyday words and then sees how many they can write down. He repeats this procedure with a different group who are given caffeine free coke.

What are the two conditions of the Independent variable?

Drinking can of coke
Drinking can of caffeine free coke

This is the **Alternate Hypothesis**

“There will be a significant difference in the number of everyday words recalled by participants who drank a can of coke compared to participants who drank a can of caffeine free coke .



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This is the **Null Hypothesis**

“There will be no significant difference in the number of everyday words recalled by participants who drank a can of coke compared to participants who drank a can of caffeine free coke .
Any difference would be due to chance.”

Task 2 – Test your Learning

Identify which of these hypotheses is one-tailed and which is two-tailed.

1. ‘Leading questions affect memory of an event’.

Two-tailed

2. ‘Taxi drivers will score higher on a memory test than non-taxi drivers’.

One-tailed

3. ‘Listening to music will increase your ability to learn information’.

One-tailed

4. ‘Noise reduces concentration’.

One-tailed

5. ‘Watching TV affects aggressive behaviour’.

Two-tailed



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Task 3

1. A researcher is investigating how well Police officers recall number plates compared to non-Police officers by showing a slideshow of 10 number plates, then 5 minutes later they had to write down as many as they can remember. To get a point the number plate must be recalled exactly.

First identify IV and DV

IV condition 1

Police Officers

IV condition 2

Non Police Officers

DV

Number of correctly recalled number plates

Write an Alternate Hypothesis:

Could be one or two-tailed

Two-tailed: There will be a significant difference in the number of correctly recalled number plates by police officers compared to non-police officers.



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2. A researcher is comparing the time taken to complete a lap of a driving obstacle course of male and female participants.

First identify IV and DV

IV condition 1

Males

IV condition 2

Females

DV

Time taken to complete a lap of a driving obstacle course

Write a two-tailed Alternate Hypothesis:

There will be a significant difference in the time taken to complete a lap of a driving obstacle course by males compared to females.

Write a Null Hypothesis:

There will be no significant difference in the time taken to complete a lap of a driving obstacle course by males compared to females. Any difference will be due to chance.



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3. A researcher is comparing the number of guilty verdicts given in a mock burglary trial based on the area the accused is from. In one condition the defendant (an actor) has a Yorkshire accent and in the other condition the same defendant, in the same clothes, giving the same evidence, speaks with a Liverpudlian accent.

First identify IV and DV

IV condition 1

Defendant has Yorkshire accent

IV condition 2

Defendant has Liverpudlian accent

DV

The number of guilty verdicts given in a mock burglary trial

Write a one-tailed Alternate Hypothesis:

Participants who see a defendant with a Yorkshire accent will give significantly less guilty verdicts in a mock burglary trial than participants who see a defendant with a Liverpudlian accent.

OR A defendant with a Yorkshire accent will receive significantly less guilty verdicts in a mock burglary trial than a defendant with a Liverpudlian accent.

Obviously they could state 'more' instead of 'less.'



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Task 4

By its very nature this task should elicit a wide range of responses and as such it is impossible to give definitive answers. The answers suggested are just one way of investigating the research question.

The key points are:

1. Until they have come up with a basic procedure it is impossible to make an operationalised hypothesis.
2. The students should stick to simple two condition experiments.
3. The two conditions of the IV should be fully operationalised – be a stickler here. If they suggest classical music – by who? A hot room – where? How hot? Etc
4. The DV should be fully operationalised. It should yield quantitative data and be replicable.
5. Make it clear that no experiment is perfect so not to worry about problems with the study.

1. Does classical music improve learning?

First decide your IV and DV.

IV condition 1

Participants listen to Mozart while learning 20 capital cities

IV condition 2

Participants listen to Lady Gaga while learning 20 capital cities

DV

Number of capital cities correctly written down

Write an Alternate Hypothesis:

There will be a significant difference in the number of capital cities recalled if participants listened to Mozart whilst learning compared to if they listened to Lady Gaga.



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2. Does lighting affect gambling behaviour?

First decide your IV and DV.

IV condition 1

Participants gambling under red lighting

IV condition 2

Participants gambling under white lighting

DV

Number of gambles made in 15 minutes

Write an Alternate Hypothesis:

There will be a significant difference in the number of gambles made in 15 minutes if participants gamble under red lighting compared to if they gamble under white lighting.



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3. Does temperature affect aggression?

First decide your IV and DV

IV condition 1

Participants in a hot office in July.

IV condition 2

Participants in an air conditioned office in July

DV

1-10 self-rating of aggression (1 = not feeling aggressive – 10 =feeling extremely aggressive)

Write an Alternate Hypothesis:

There will be a significant difference in the 1-10 self-rating of aggression (1 = not feeling aggressive – 10 =feeling extremely aggressive) of participants in a hot office in July compared to participants in an air conditioned office in July.



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