

Lab Experiments

Lab experiments are, of course, fundamental to any proper understanding of psychological research. They form the basis of many well-known studies, and a proper understanding of what distinguishes lab experiments from field and quasi-experiments is crucial for any student of psychology. There are many simple lab experiments that can be conducted in the classroom with minimal preparation or resources. I have included three of my favourites below. I favour these due to their simplicity and the fact that you can usually observe a noticeable difference between the two conditions. Remember to highlight the following key characteristics as you deliver a lab experiment:

- The participants in each condition are randomly selected.
- The independent variable (IV) and dependent variable (DV) are clearly and precisely operationalised.
- Extraneous and confounding variables are controlled as much as possible.
- The conditions in the 'lab' are not particularly naturalistic.

#1 – Deep Processing

This one absolutely never fails! Based on Craik and Lockhart's (1972) Levels of Processing theory, this simple lab experiment will always provide a noticeable (and often significant) difference between the two conditions.

DELIVERY

- The crucial first step is to randomly allocate your class into the two conditions of your independent variable (IV). You can use a random name picker or try the following useful website for allocating random groups: www.randomlists.com/team-generator.
- Print sufficient copies of the worksheet (LE1) and cut them in half. You will need enough for each participant in the deep processing condition to have one, and the same for the shallow processing condition.

Instructions: For this demonstration, you will see a series of words. When you see each word, circle "Yes" if the word contains the letter E and "No" if it doesn't contain a letter E.

1 Yes / No

2 Yes / No

Shallow processing

Instructions: For this demonstration, you will see a series of words. When you see each word, circle "Yes" if the word sounds pleasant to you and "No" if it doesn't sound pleasant to you.

1 Yes / No

2 Yes / No

Deep processing

- Remind the students of the importance of maintaining the validity of the study by not looking at their neighbour's sheet!



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- Give the students a minute to read the instructions and ensure that everyone understands what they need to do.
- Next, you need to either show them (using a PowerPoint or similar) or simply read out fifteen unrelated words. I have provided a list of suggested words (LE2), but any fifteen words will suffice. Move through the list fairly quickly, spending only a few seconds on each word. Students should follow the instructions, which will differ for each condition.
- After you've finished with the word list, ask the students to turn over the sheet and write down as many words as they can remember on the back. Don't reveal that this is a memory test until this point!
- Count the number of words remembered for each group and calculate the average for each condition. You should find a higher mean number of words remembered for the deep processing group.

You could connect to cognitive psychology by referencing models of working memory, like Atkinson and Shiffrin's model, and highlight the significance of deep processing for A-level revision.

DEBRIEF

You should draw attention to the key aspects of a lab experiment. Focus on the randomised groups, where everyone had an equal chance of being in either condition. Highlight the controlled and 'artificial' nature of the task.

STATS & GRAPHS

You could use the data produced to create a simple bar chart or pie chart.

You could identify the ratio level of measurement here too. A Mann-Whitney inferential test could be carried out using this data.



#2 - Motivation Experiment

This is an experiment based on research into motivation. Do we work harder if we are given a specific target or not? This often produces interesting results that can spark classroom debate and offers another opportunity to demonstrate the key aspects of a lab experiment.

DELIVERY

- Start with the same randomisation process outlined in the deep processing experiment. Use the worksheets provided (LE3 and LE4). Give one group the worksheet with the following instructions:

Write down the anagram for each word in the right hand column. You have **5 minutes** to complete this—the challenge is to get **17 words** figured out in the time given—I will let you know when 2 1/2 mins has passed. (You may use the back of this sheet for working out potential answers—there may be more than one correct answer for some of these)





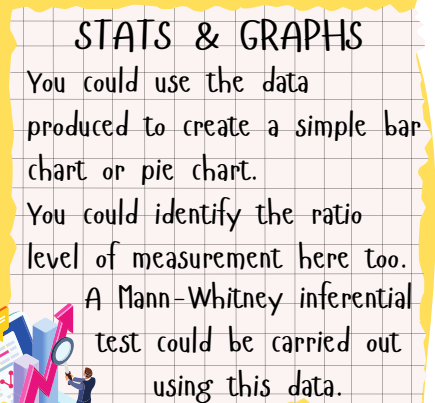
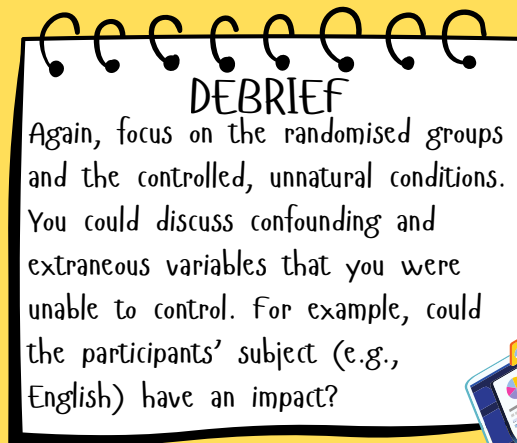
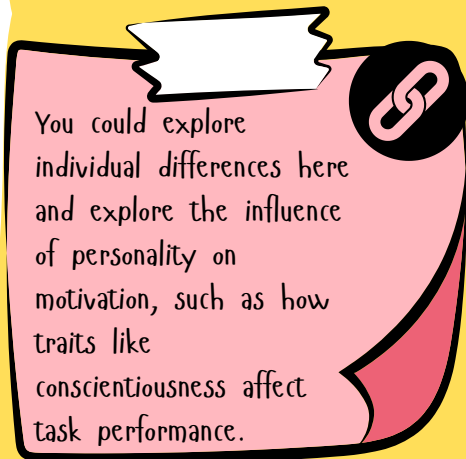
Lab Experiments



- Give the second group the worksheet with the following instructions:

Write down the anagram for each word in the right hand column. You have **5 minutes** to complete this—just do your best!—I will let you know when 2 1/2 mins has passed. (You may use the back of this sheet for working out potential answers—there may be more than one correct answer for some of these)

- Allow the students five minutes to solve as many of the anagrams as possible.
- When the time is up, go through the answers provided on Worksheet LE4. Calculate the mean number of anagrams successfully completed for each condition.



#3 - Halo Effect Sentencing

This is an effective experiment into the famous halo effect. I have had mixed results with this one, as there are many variables at play. It is another good example for initiating debate into the cognitive approach and can also be linked to criminal and forensic psychology.

DELIVERY

- Start with the same randomisation process outlined in the deep processing experiment.
- Use the worksheet provided (LE5). Give one group the sheet with the 'attractive' female and 'less attractive' male (according to AI! No real people were harmed in the making of this resource!). The sheet includes a description of their offence and the sentencing guidelines.
- Give the other group the alternative sheet with the 'less attractive' female and the 'attractive' male.
- Allow the students time to read and consider an appropriate sentence for each of their two criminals.



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- Collect the responses and calculate the mean sentence given for the attractive vs. less attractive male and female criminals.
- The hypothesis would be that the halo effect is at play, leading to lower sentencing for the more attractive defendants. Of course, this may not be the case for your students.

This links with the cognitive approach. You could make connections to schema theory here, as well as relationship formation. You could also discuss the implications of this theory in terms of the CJS and justice more generally.

DEBRIEF

Again, focus on the randomised groups and the controlled, unnatural conditions. There are a wide range of extraneous and confounding variables at play here too. You could highlight the seriousness of the crime or the gender of the participants as potential factors.

STATS & GRAPHS

You could use the data produced to create a simple bar chart or pie chart.

You could identify the ratio level of measurement here too.

A Mann-Whitney inferential test could be carried out using this data.

Extension and Development

These are nice, simple activities that will allow you to demonstrate the fundamentals of conducting research. There are a number of ways you could reshape or revise all three of these experiments.

You could redesign all three to use a repeated measures experimental design. While I think all three work better as independent groups, using repeated measures would allow you to highlight the problems of this design. For example, demand characteristics would be evident in all three experiments, but particularly in the halo effect experiment.

You could also draw attention to the likely order effects present in both the deep processing and motivation experiments, as students may get better at solving anagrams, for example.

All three experiments offer an opportunity to explore the impact of extraneous and confounding variables and provide a chance to discuss the best ways to manage these.

An important final aspect to reinforce would be the lack of ecological validity in lab studies like these. In real life, would people really base sentencing decisions on looks? In a real workplace, would motivational targets actually work better, especially if linked to pay?

Students can also complete the graph and statistics sheets and the experiment summary sheet as extension work.

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- 4 Yes / No
- 5 Yes / No
- 6 Yes / No
- 7 Yes / No
- 8 Yes / No
- 9 Yes / No
- 10 Yes / No
- 11 Yes / No
- 12 Yes / No
- 13 Yes / No
- 14 Yes / No
- 15 Yes / No

Instructions: For this demonstration, you will see a series of words. When you see each word, circle “Yes” if the word sounds pleasant to you and “No” if it doesn’t sound pleasant to you.

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- 8 Yes / No
- 9 Yes / No
- 10 Yes / No
- 11 Yes / No
- 12 Yes / No
- 13 Yes / No
- 14 Yes / No
- 15 Yes / No

Sample word lists

feather
home
steel
hot
underwear
team
loaf
cover
jellyfish
effect
digestion
company
hook
cloth
hour

game
business
cannon
lift
dinosaurs
addition
cactus
increase
rice
partner
death
wall
throne
journey
stew

ear
head
iron
basket
dirt
bucket
calculator
country
minute
trade
river
dress
soda
map
waste

throat
amusement
volleyball
crown
scene
shoe
arithmetic
poison
calculator
tail
sock
coil
sand
afternoon
chickens

cable
nose
walk
feet
fog
drawer
notebook
interest
quilt
mist
things
lettuce
flowers
elbow
fruit

birds
goldfish
toy
support
twist
grade
pocket
cattle
hot
flower
walk
religion
paint
letters
rainstorm

Anagram Challenge

Write down the anagram for each word in the right hand column. You have **5 minutes** to complete this—the challenge is to get **17 words** figured out in the time given—I will let you know when 2 1/2 mins has passed. (You may use the back of this sheet for working out potential answers—there may be more than one correct answer for some of these)

Anagram	Word
balm	
foal	
mash	
dolt	
flue	
town	
hewn	
awry	
ante	
gape	
free	
chum	
earn	
kris	
burg	
lucre	
clasp	
snipe	
hater	
pries	

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Anagram answers

balm = lamb

foal= loaf

mash= sham

dolt= told

flue= fuel

town= wont

hewn= when

awry= wary

ante= neat

gape= page

free= reef

chum= much

earn= near

kris= risk

burg= grub

lucre= cruel / ulcer

clasp= claps / scalp

snipe= pines / spine

hater= earth / heart

pries= piers / spire



Steve

Possession of a controlled substance and
illegal firearms

SENTENCE - 3-10 years

Steve's home was raided by police and they discovered a meth lab, 4lb of cocaine, 6 handguns, an automatic rifle and £35,000 in cash.

Appropriate sentence for Steve _____ Years



Gemma

Manslaughter

SENTENCE - 7-15 years

Gemma left her one year old child in a car during the afternoon whilst she drank in a bar. The outside temperature was 40 degrees and the child died.

Appropriate sentence for Gemma: _____ years.



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Research Summary ✨*

Experimental/Alternative hypothesis:

Null hypothesis:

Independent variable (state how it was operationalised):

Dependent variable (state how it was operationalised):

Experimental Design (include one strength & one limitation):

Identify one strength & one limitation of using a lab experiment in this study.

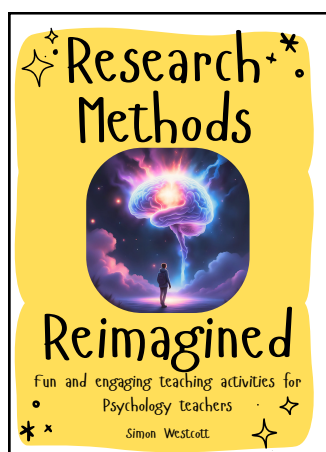
What sampling technique was used (include one strength & one limitation)?

Identify any validity, reliability or ethical issues that may have impacted on the research.

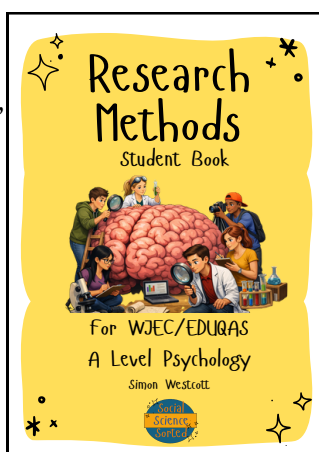


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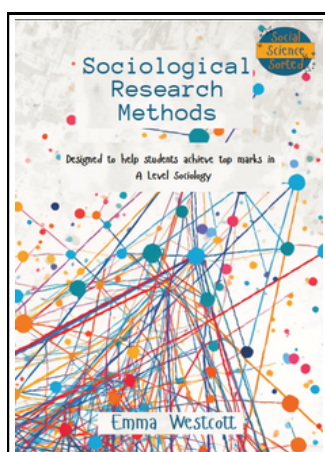


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