# Learning Objectives

1. To critique a methodology
2. Develop your stimuli
3. To work on your method section

# Activity 4.0

## Critique a method section

A methodology should ensure that any reader would be able to understand the experimental paradigm that you are using, the study design, the variables (IVs and DVs) and the decisions that you made to choose the stimuli (setting parameters to control for differential effects of stimuli in an experiment)

Organise yourselves into three groups. Your tutor will give each group a methodology section to consider. Your task is to critique the method section. Each of these papers is from a published journal and will have been reviewed by peers.

Some of the questions you could think about:

* Does the method section discuss the design of the and IVs/DVs?
* Can you identify what they are measuring?
* What task/s did the authors use?
  + Are they adequately referenced?
* How many trials did the participant complete?
  + Is there information about the on-screen durations for stimuli?
* Can you identify any possible experimental confounds?
* Could you replicate the study?
  + If not, why not?
* Identify any good practice in this methodology?
* In some of the method sections the authors report exclusion criteria. What exclusion criteria might you put in place in your Lexical Decision Task?

# Some Answers Method Section 1

1. Does the method section discuss the design of the and IVs/DVs?

Not at all. It tells us it was experimental, and the duration of the testing period was one year, but nothing else about the design.

We can infer from the Subject Selection section (this would be a Participant section)

1. Can you identify what they are measuring?

No. I can infer from the Subject Selection that it seems to be something that might pertain to cognitive differences in those with cervical spondylosis, and a healthy control group, but there is no explicit mention of IV/ DVs

1. What task/s did the authors use?

From Figure 1 I can tell that the study is using a Simple Reaction Time task, but if you were not familiar with this task, then there is nothing to identify the name/authors of the task used.

* 1. Are they adequately referenced?

No. There is no citation in the text

1. How many trials did the participant complete?

2 practice trials, and 20 experimental trials

* 1. Is there information about the on-screen durations for stimuli?

No. Nothing to show how long stimuli were on screen

1. Can you identify any possible experimental confounds?

The authors seem to account for exclusion criteria well enough.

1. Could you replicate the study?

No

* 1. If not, why not?

There is not enough information, we can’t be certain of the test used, we don’t know a thing about the task itself, there’s no citation for us to go and check for ourselves

1. Identify any good practice in this methodology?

The exclusion criteria is detailed - even so, it doesn’t tell us why these exclusions should apply.

1. In some of the method sections the authors report exclusion criteria. What exclusion criteria might you put in place in your Lexical Decision Task?

I’m not answering this for you.

# Some Answers Method Section 2

1. Does the method section discuss the design of the and IVs/DVs?

Not at all. It tells us it was quasi-experimental, which suggests a “grouping variable”, the title of the articles suggests they were looking for a difference between a naturally occurring grouping variable (M/F). No mention of DVs and it’s not explicitly specified in the design that sex of the participant is the IV

1. Can you identify what they are measuring?

They give some information

A fatigue protocol where they completed a jumping task to induce fatigue, then they measure fatigue on the Borg Scale (no citation)

Choice Reaction time task. They used the Deary Liewald software (which is referenced in your activity sets), they also specify it is the 4 choice option task. Once again, no citation available.

1. What task/s did the authors use?

DLCRT – they also mention at this point that it was taken before and after the fatigue paradigm was introduce, which suggests a within -participants element to the design of the study. Not explicitly stated, I’m inferring

* 1. Are they adequately referenced?

No. There is no citation in the text

1. How many trials did the participant complete?

30 experimental trials

* 1. Is there information about the on-screen durations for stimuli?

No. Nothing to show how long stimuli were on screen

1. Can you identify any possible experimental confounds?

The authors seem to account for exclusion criteria well enough.

1. Could you replicate the study?

Possibly. There’s enough detail to replicate, however it’s not detailed enough to allow us to be certain we had completed a direct replication of the study

* 1. If not, why not?

There’s enough detail to replicate, however it’s not detailed enough to allow us to be certain we had completed a direct replication of the study

1. Identify any good practice in this methodology?

The exclusion criteria is detailed - again, it doesn’t tell us why these exclusions should apply. We can guess that people who have any of the conditions or issues in the exclusion criteria may be more negatively impaired by the fatigue test when compared with healthy people.

# Some Answers Method Section 3

1. Does the method section discuss the design of the study and IVs/DVs?

Design – within-participant

IV - Cocoa Flavanol level administered (High v Low CF)

DVs – Cognitive testing (visuospatial working memory, choice RT, motion coherence threshold, contrast sensitivity, and motion integration time threshold)

1. Can you identify what they are measuring?

I would infer that they are measuring the effects of cocoa flavanols on cognitive functioning.

They give some information. While they mention the tasks used, there is little to no citations to indicate the full paradigms used

1. What task/s did the authors use?

See DVs in q1

* 1. Are they adequately referenced?

No. There is no citation in the text

1. How many trials did the participant complete?

30 experimental trials

* 1. Is there information about the on-screen durations for stimuli?

No. Nothing to show how long stimuli were on screen

1. Can you identify any possible experimental confounds?

The authors discuss the possible confounds in terms of the participants suspecting that choc was the thing being manipulated in the study, so they used a small amount of deception to keep the participants naïve to the true meaning of the study. They also counterbalanced the presentation of the CF across the participants.

1. Could you replicate the study?

Highly probable. There’s some info in 2.3 regarding the dose of CF for the high and low conditions (plus a citation for it – not properly cited though). In section 2.5.2 they detail the CRT well. On screen durations provided for the inter stimulus interval, n of trials provided, stimuli presented and the responses specified. Outlines 2 phases, 1st phase seems like a practice block. They also clearly indicate which measures were used in the analysis.

* 1. If not, why not?

1. Identify any good practice in this methodology?

Lots of detail about how decisions were made (based on previous literature), counterbalancing presentation order of high CF/low CF, good info regarding the constitution of the CF. Clear info about procedure (dietary exclusions etc) provided to participants.