

How to Design and Write up a Study: A beginners Guide

Part 1: Formulating a hypothesis

Dr Jasna Martinovic

1

Outline

- Key steps in research
 - Initial spark
 - Operationalising the question
 - Determining the most appropriate analytic approach
 - Deciding on the most suitable methods
- Research design as an iterative process – fine-tuning the operationalisation, hypotheses, planned analysis and stimuli/task
- Similarities between designing and writing up a study
- Concluding remarks

2

Initial spark

Awareness that a full understanding of something important is lacking:
often expressed as “how”, “what” or “why” type questions

Comes out of prior knowledge and reading about the topic (both theoretical and empirical papers)

More reading – leads to refinement of ideas

Next step: operationalising the research question

3

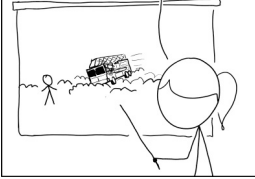
Exercise 1

Write down the main prediction of a research paper you most recently read and are familiar with (e.g. for Critical Analysis)

4

What is wrong with the prediction expressed in this cartoon?

THE BERNOULLI-DAPPIER-LEIDENFROST-PELTZMAN-SAPIR-WHORF-DUNNING-KRUGER-SIROOP EFFECT STATES THAT IF A SPEEDING FIRE TRUCK LIFTS OFF AND HURTLES TOWARD YOU ON A LAYER OF SUPERHEATED GAS, YOU'LL DIVE OUT OF THE WAY FASTER IF THE DRIVER SCREAMS "BZZZ" IN A NON-TOTAL LANGUAGE THAT HAS A WORD FOR "FIREFIGHTER" THAN IF THEY SCREAM "BZZZZ" IN A TOTAL LANGUAGE WITH NO WORD FOR "FIREFIGHTER" WHICH YOU THINK YOU'RE FLUENT IN BUT AREN'T



The Role of Theory

Theories should make clear, non-trivial predictions that can be tested and potentially falsified in a study

5

How to make a good hypothesis

Hypotheses propose a specific relationship that could explain a given phenomenon

It should (at least implicitly) have the formal structure of a **conditional statement** (e.g. if-then) - contrast this with the broader 'how' or 'what' initial spark question

It should be **falsifiable** – i.e. it needs to be possible to find evidence to the contrary of the predicted outcome

The more **generalisable** it is, the better – i.e. if it only predicts what happens under a very specific set of circumstances, it is not very valuable

6

Exercise 2

Do the predictions that you wrote down in Exercise 1 meet the criteria for a good hypothesis?

If not, can you rephrase it to make it meet these criteria?

7

Falsifiability and informativity of Hypotheses

The number of potential falsifiers (and thus the informativity of a hypothesis) changes if the 'if' and 'then' parts of it are extended by 'and' or 'or' components:

Example:

„If it snows, then the roads are slippery“

„If it snows or rains, then the roads are slippery“

→ The 2nd statement is more informative

However, we can only test a limited set of conditions in our study – studying the totality of reality falls into the domain of philosophy

8

Thank you for your attention!

- This recording: how to generate an informative hypothesis
- Next recording: we will delve further into the research process by looking at how to operationalise the hypothesis and test it