How to write Hypothesis?

Variables in hypotheses

Hypotheses propose a relationship between two or more types of variables.

An independent variable is something the researcher changes or controls.

A dependent variable is something the researcher observes and measures.

Developing a Hypothesis

Step 1. Ask a question
Step 2. Do some preliminary research
Step 3. Formulate your hypothesis
Step4. Refine your hypothesis
Step 5. Phrase your hypothesis in three ways
Step6. Write a null hypothesis
Step 7. Write an alternative hypothesis

Hypothesis Examples

Hypothesis examples

Research question	Hypothesis	Null hypothesis
What are the health benefits of eating an apple a day?	Increasing apple consumption in over-60s will result in decreasing frequency of doctor's visits.	Increasing apple consumption in over-60s will have no effect on frequency of doctor's visits.
Which airlines have the most delays?	Low-cost airlines are more likely to have delays than premium airlines.	Low-cost and premium airlines are equally likely to have delays.
Can flexible work arrangements improve job satisfaction?	Employees who have flexible working hours will report greater job satisfaction than employees who work fixed hours.	There is no relationship between working hour flexibility and job satisfaction.
How effective is high school sex education at reducing teen pregnancies?	Teenagers who received sex education lessons throughout high school will have lower rates of unplanned pregnancy than teenagers who did not receive any sex education.	High school sex education has no effect on teen pregnancy rates.
What effect does daily use of social media have on the attention span of under-16s?	There is a negative correlation between time spent on social media and attention span in under-16s.	There is no relationship between social media use and attention span in under-16s.

Features of an Effective Hypothesis?

- **Testability:** Ensure the hypothesis allows you to work towards observable and testable results.
- **Brevity and objectivity:** Present your hypothesis as a brief statement and avoid wordiness.
- **Clarity and Relevance:** The hypothesis should reflect a clear idea of what we know and what we expect to find out about a phenomenon and address the significant knowledge gap relevant to a field of study.

Understanding Null and Alternative Hypotheses in Research

There are two types of hypotheses used commonly in research that aid statistical analyses.
These are known as the ***null hypothesis*** and the ***alternative* hypothesis**.
A null hypothesis is a statement assumed to be factual in the initial phase of the study.
For example, if a researcher is testing the efficacy of a new drug, then the null hypothesis will posit that the drug has no benefits compared to an inactive control or *placebo*. Suppose the data collected through a drug trial leads a researcher to reject the null hypothesis. In that case, it is considered to substantiate the alternative hypothesis in the above example, that the new drug provides benefits compared to the placebo.

Null Hypothesis:

The rate of decline in the number of species in habitat X in the last year is the same as in the last 100 years when controlled for all factors except the recent wildfires.
In the next experiment, the researcher will experimentally reject this null hypothesis in order to confirm the following **alternative hypothesis**:
The rate of decline in the number of species in habitat X in the last year is different from the rate of decline in the last 100 years when controlled for all factors other than the recent wildfires.
In the pair of null and alternative hypotheses stated above, a statistical comparison of the rate of species decline over a century and the preceding year will help the research experimentally test the null hypothesis, helping to draw scientifically valid conclusions about two factors—wildfires and species decline.
We also recommend that researchers pay attention to contextual echoes and connections when writing research hypotheses. Research hypotheses are often closely linked to the introduction[2], such as the context of the study, and can similarly influence the reader's judgment of the relevance and validity of the research hypothesis.

Statement 1: This research aims to find out what people think about television.

Statement 2: My project is to do some research into Alzheimer's disease, to find out what people do when their relatives have it and what support they can get and how nurses deal with it.

Statement 3: We want to find out how many of the local residents are interested in a play scheme for children during the summer holiday

Revised Statement 1: This research aims to find out what primary school teachers think about the educational value of ‘The Teletubbies’ television programme.

The aim of this research is to find out how many relatives of Alzheimer’s patients use the Maple Day Centre, and to ascertain whether the service is meeting their needs.

This research aims to find out how many people from our estate are interested in, and would use, a children’s play scheme in the school summer holiday

- The research methodology is the philosophy or general principle which guides the research.
- Research methods are the tools you use to gather your data. Qualitative research explores attitudes, behaviour and experiences.
- Examples of qualitative methodologies include action research, ethnography, feminist research and grounded theory.
- Quantitative research generates statistics through the use of large-scale survey research.
- Neither qualitative nor quantitative research is better – they are just different. Both have their strengths and weaknesses.
- Your own intuition and the words you use will give pointers to whether qualitative or quantitative research is more appropriate for your chosen project.
- The term ‘triangulation’ is used when a combination of qualitative and quantitative forms of inquiry are used