

Experimental hypotheses

You are learning how to...	In the context of...
<ul style="list-style-type: none"> • State experimental hypotheses • Distinguish between directional and non-directional hypotheses • Interpret summary data in terms of hypotheses 	<ul style="list-style-type: none"> ○ Studies you have learned about previously

Recall that an **aim** states quite specifically what a researcher wishes to find out. An **experimental hypothesis** goes one step further and predicts exactly what the researcher expects to find. A well-formed experimental hypothesis should predict the **effect** the IV will have on the DV. The hypothesis may be **directional**, in which case it predicts both the effect the IV will have but also the direction in which the effect will run:

PPs who learn a word list before sleeping will recall *more* words than those who learn the list after waking.

Or it may be **non-directional**, in which case it predicts an effect, but not which way the effect will run:

There will be a *difference* in the number of words recalled between PPs who learn a word list before sleeping and those who learn it after waking.

1. State a directional hypothesis for each of the following research studies. Then examine the summary table of data and decide whether you would accept or reject your hypotheses.

A* extension task: comment on what the standard deviation suggests about the difference between DV scores in the conditions of the experiment.

PPs were tested on their ability to avoid obstacles in a computer driving simulation. The simulator recorded how many times the PPs hit an obstacle during the simulation (max. 30). Half of the PPs were asked to respond verbally to a series of questions during the simulation. The other half completed the same task but without questions.

	Conversation	Silence
Mean	7.3	5.4
S.D.	4.7	1.2

PPs were given a passage of complex text to read, either with music playing in the background or in silence. Afterwards they were asked a series of ten questions to test their comprehension of the text. Each question was marked either correct or incorrect.

	Music	No music
Mean	8.3	8.1
S.D.	2.6	3.0

Researchers asked AS Level student PPs, to complete a questionnaire about how long they spent studying each week. They were divided into two groups: those who spent more than ten hours a week studying and those who spent ten hours or less. After the exams, the researchers compared the exam marks (max. 100) of the two groups.

	<10hours	>10hours
Mean	65.9	68.3
S.D.	15.4	8.9

2. State a non-directional experimental hypothesis for each of these studies.

3. State hypotheses for three experiments you have studied in your course. State whether each of your hypotheses is directional or non-directional.