

## 4

# Describing research methods

## A Useful word combinations

We may carry out a procedure or an experiment or a pilot study. [preliminary study]

We use or, more formally, employ a method or a technique or an approach or an instrument or a device. [an object or method used for a special purpose] You can also use or employ any particular type of research methodology.

Apparatus [equipment for a lab experiment] is assembled and checked. *Apparatus* is an uncountable noun but you can talk about a piece of apparatus.

## B Types of research method

| research method   | what the researcher does   | limitation of method   |
|---|--|--|
| <b>experimental study</b>   | <b>manipulates</b> <sup>1</sup> a variable [anything that can vary] under highly <b>controlled conditions</b> to see if this produces [causes] any changes in a second [dependent] variable  | done in the highly controlled <b>setting</b> of the <b>laboratory</b> – these conditions are <b>artificial</b> <sup>2</sup> and may not <b>reflect what happens</b> in the infinitely more complex real world; other researchers often try to <b>replicate</b> <sup>3</sup> successful experiments |
| <b>correlational study</b>  | attempts to <b>determine</b> the <b>relationship between two or more variables</b> , using <b>mathematical techniques</b> for summarising data   | only shows that two variables are <b>related in a systematic way</b> , but does not <b>prove</b> or <b>disprove</b> <sup>4</sup> that the relationship is a <b>cause-and-effect relationship</b>   |
| <b>naturalistic (empirical) observation</b> (also known as <b>field study</b> ) | <b>observes</b> and <b>records</b> some behaviour or <b>phenomenon</b> <sup>5</sup> , often over a prolonged period, in its <b>natural setting</b> without <b>interfering with</b> <sup>6</sup> the <b>subjects</b> or <b>phenomena</b> in any way | can be very <b>time-consuming</b> as researcher may have to wait for some time to observe the behaviour or phenomenon of interest; difficult to observe behaviour without <b>disrupting</b> <sup>7</sup> it  |
| <b>survey</b>   | <b>makes inferences from</b> <sup>8</sup> <b>data collected</b> via interviews or questionnaires   | intentional deception, poor memory, or misunderstanding of the question can all contribute to <b>inaccuracies in the data</b>  |
| <b>case study</b>   | keeps <b>in-depth</b> <sup>9</sup> descriptive records, as an <b>outside observer</b> , of an individual or group  | often involves only a single individual as the <b>subject</b> of the study and this person may not <b>be representative</b> <sup>10</sup> of the general group or <b>population</b>  |

<sup>1</sup> makes changes to <sup>2</sup> not natural <sup>3</sup> do in exactly the same way <sup>4</sup> show something is not true <sup>5</sup> something that exists and can be

seen, felt, tasted, etc. <sup>6</sup> altering <sup>7</sup> making it change <sup>8</sup> comes to conclusions on the basis of <sup>9</sup> detailed <sup>10</sup> typical



Remember that **phenomenon** is the singular and **phenomena** is the plural. The same applies to **criterion/criteria**. [a standard by which you judge, decide about or deal with something] See also Unit 31.

## Exercises

### 41.1 Complete the sentences in these two texts with words from the opposite page.

Scientists disagree as to whether cold fusion, the controlled power of the hydrogen bomb in the laboratory, is possible. In the past, some believed that e..... s..... under la..... c..... using palladium and platinum electrodes could in fact cause heavy hydrogen atoms to fuse into helium and release energy, as the sun does. In carefully controlled experiments, researchers believed they could ma..... the v..... arising from the complexity of the electrodes and other equipment used. In such co..... co....., they argued, cold fusion was possible. However, attempts to r..... some of the experiments which claimed to be successful failed, and many now believe that cold fusion is in fact theoretically impossible.

Some linguists believe that we can best d..... how language is processed by laboratory experiments. However, laboratory experiments are by definition ar..... and may not r..... what happens in the real world. Other linguists believe, therefore, that em..... o..... is better, and prefer to carry out f..... studies and c..... studies of individuals in na..... se..... In this way, i..... -d..... data can be c..... by observers without i..... with the process in any way, even though this may be a more t..... -c..... method. However, individual studies in real situations may not be r..... of the general p..... of second language learners. In short, both approaches have their advantages and disadvantages.

### 41.2 Use the words in the box to complete the diagrams. Add *a/an* and anything else needed to complete the phrase.

check methodology pilot study procedure assemble technique experiment device piece

carry out — [ ..... ] employ/use — [ ..... ] — [ ..... ] apparatus

### 41.3 Now complete the sentences using phrases from 41.2.

- 1 It was a new ..... of apparatus so we ..... it first and then ..... it before using it.
- 2 The team carried out a ..... before conducting the main ..... to see if the ..... they were using was reliable.
- 3 The team needed to employ a different ..... for measuring the pressure, so they used a new ..... which they manufactured in their own laboratory.

### 41.4 Correct the eight spelling and other vocabulary mistakes in these sentences.

- 1 It was very difficult to make reliable interferences from the data as we had so little.
- 2 A correlational study is a good way of seeing if one phenomena is related to another in a system way.
- 3 The experiment neither proved nor deproved Jessop's theory.
- 4 We had to explain the unusual scores of five of the subjects in the sample, who all had totals well below the norm. It was possible there were unaccuracies in the data.
- 5 An exterior observer can often unintentionally erupt the behaviour of the subjects they are observing.