

Chapter 5

METHOD

After the introduction, the second major section of the experimental research report, often labeled method, describes the steps you followed in conducting your study and the materials you used at each step. The method section is useful to readers who want to know how the methodology of your study may have influenced your results, or who are interested in replicating or extending your study.

In this chapter, we first look at the general kinds of information included in method; then we focus on the part of the method section that describes *procedural steps*. In the next chapter we examine *materials*.

Ordering Your Information

The elements included in the method section and the order in which they are presented are not fixed. However, the list in the following box is conventional and provides you with a good model.

INFORMATION ELEMENTS INCLUDED IN METHOD

Overview of the experiment
Population / Sample
Location
Restrictions / Limiting Conditions
***Sampling Technique**
***Procedures**
***Materials**
***Variables**
***Statistical Treatment**
(* always included)

LANGUAGE CONVENTIONS

Choosing Verb Tense and Voice in Procedural Description

Several grammatical conventions govern the method section. In this chapter, I concentrate on those conventions governing the *procedural description*. These concern choosing the correct verb tense and verb voice.

Choosing the Correct Verb Tense in Procedural Descriptions

The procedures you used in carrying out your study should usually be described in the simple past tense. Sentences included under method that are not written in the past tense usually *do not* refer to the procedures used in the study being reported. Instead, they may describe standard procedures that are commonly used by others.

**PROCEDURAL DESCRIPTIONS:
Past Tense**

Surveys were sent to student health services at 180 colleges.

The study was carried out on a marine laboratory research vessel.

The generators supplied about 14,000 amps when fully operational.

NOTE: In a few fields of study, *procedural descriptions* can sometimes be written in the *simple present tense*. You should check journals in your field in your university department to determine which convention to use.

Choosing the Appropriate Verb Voice - Active or Passive

You can use either, the *active* or the *passive* voice when you describe the procedure used in your project. Examples of both voices are given in the

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following box. Notice that the formation of the passive voice requires the **be** auxiliary +the past participle of a verb.

PROCEDURAL STATEMENTS			
ACTIVE VOICE			
Agent +	Main verb + (active)	Object +	Complement
We	applied	stress	to the rubber segments in gradually increasing increments
PASSIVE VOICE			
Subject +	Main verb + (passive)	Agent +	Complement
Stress	was applied	(by the investigators)	to the rubber segments.....

Your decision whether to use the active or passive voice in procedural statements should be made with the following considerations:

1. The passive voice is conventionally used to describe procedure in order to *depersonalize* the information. The passive construction allows you to omit the agent (usually "I" or "we"), placing the emphasis on the procedure and how it was done.

EXAMPLE A:

For reasons related to personal safety, the test facility *was constructed* (by us) in a remote area 4 miles from the main road.

EXAMPLE B:

Tests were conducted (by me) with four different types of reactors

However, your professor or editor may specifically ask you not to use the passive voice because he or she prefers a more personal style with frequent use of the pronouns "I or we".

2. In addition to questions of style, your choice of the active or passive voice should place *old information* near the beginning of the sentence and *new information* at the end. The old information is *italicized* in each sentence in example C.

EXAMPLE C:

The four reactors we tested in the work reported here all contained a platinum catalyst (ACTIVE). Each *reactor catalyst configuration* will be described separately (PASSIVE). The *quartz reactors* were manufactured by the Wm. A. Sales Company of Wheeling, Illinois (PASSIVE)

Using Short Passive Forms to Describe Procedure

In technical and scientific English, there is a tendency to *shorten* certain kinds of passive constructions. Three such kinds of sentences are commonly used in procedural descriptions. The first type is a compound sentence with two identical subjects and two or more verbs in the passive. To shorten this kind of sentence, omit the subject and the **be** auxiliary in the second part of the sentence.

SHORTENING COMPOUND SENTENCES IN THE PASSIVE VOICE:						
Same Subjects						
FULL FORM:						
Subject +	be +	Past participle	+ Conjunction	+ Subject	+ be	+ Past participle
The data	were	collected	and	they	were	analyzed
SHORT FORM:						
The data	were	collected	and			analyzed

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The second type of sentence is also compound, but in this case there are two different subjects, each with different verbs in the passive voice. To shorten this kind of sentence, omit the **be** auxiliary before the second verb.

SHORTENING COMPOUND SENTENCES IN THE PASSIVE VOICE:						
Different Subjects						
FULL FORM:						
Subject +	be +	Past participle	+ Conjunction	+ Subject	+ be	+ Past participle
The data	were	collected	and	correlations	were	calculated
SHORT FORM:						
The data	were	collected	and	correlations		calculated

The third type of sentence has a *which* clause containing a passive verb form. In this case, you can shorten the clause by dropping the conjunction *which* and the **be** auxiliary.

SHORTENING “WHICH” CLAUSE SENTENCES IN THE PASSIVE VOICE:					
FULL FORM:					
Subject +	Conjunction +	be	+ Past participle	+ Verb	+ complement
The data	which	were	obtained	were	subjected to an analysis of variance
SHORT FORM:					
The data			obtained	were	subjected to an analysis of variance