

Style Points for Scientific Writing

Scientific writing follows a specific style convention. Its goal is to convey quantitative information about research as efficiently as possible, resulting in writing that is easy to scan. Writing styles used in disciplines like history or literature are not useful when writing scientifically because they do not lend themselves to efficiently presenting research findings. Below are some guidelines for scientific writing.

1. Sentences and paragraphs. Aim for brevity.

Use simple sentences to convey complex information. Longer sentences are harder to understand and to remember. They also often lead to grammatical errors. Aim for one idea per sentence: New idea, new sentence. Don't run on.

Keep paragraphs short. As with sentences, keep to one idea per paragraph: New idea, new paragraph. This can result in short paragraphs. That's okay! If you have fewer than two paragraphs per double-spaced page, look for natural breaks. If none exist, you may need to reorganize.

2. Correct verb tense

- Use present tense for generalizations and stable conditions. For example, to describe a theory that is currently held: "Theory of mind **refers** to..."
- Use past tense when referring to previous research, methods, and results, because these have occurred in the past: "Sudley (1969) **showed**...", "We **found**..."

In general, these are the verb tenses typically used in each section of a research paper:

Abstract:

Mixed tense:

- Present tense for theory and conclusions
- Past tense for experimental results

Introduction:

Mixed tense:

- Present tense for theory
- Past tense for specific methods and findings of previous research
- Future tense for hypotheses

Method, Results:

Past tense

Discussion:

Mixed tense:

- Past tense for results of the current study ("we **found**")
- Present tense for relating results to other findings or theories ("our results **are** consistent with", "the theory of natural selection **predicts** that...")

3. Passive versus active voice. Active voice is usually clearer and more to the point. For example, "Birds build nests" is clearer than "Nests are built by birds," and "I found" is clearer than "It was discovered." Use passive voice if it is clearer, but favor using active voice: subject, verb, and object.

Passive: Extra credit was given to subjects in exchange for participation.

Active: Subjects received extra credit in exchange for participation.

4. **Correct word use.** Be precise: Make every word mean what you want it to mean. Be clear: Use the simplest word that is also the most precise one. The following words are commonly misused in scientific writing.

Significant. Use in a statistical context only. The opposite of significant is "nonsignificant" (not "insignificant"). Significance refers to differences, not results.

Yes: The differences between the control and experimental groups were nonsignificant.

No: The differences were insignificant.
The results were nonsignificant.
This theory has significant implications for women as well as men.

Confound vs. Extraneous Variable. A confound refers to an unplanned factor that covaries with one experimental condition and may affect the results of an experiment. An extraneous variable is an uncontrolled factor that equally affects both experimental and control conditions. Confounds are often confused with extraneous variables.

No: The results were confounded because the thermostat failed during testing on a hot day, and participants in both experimental and control groups expressed discomfort.

(Describes an extraneous variable, not a confound, because both groups in the study experienced discomfort from the heat.)

Yes: In the control group, the thermostat failed and room temperature rose to uncomfortable levels, and this may have confounded the results.

Former and Latter. Avoid using these words to refer to something previously stated. Doing so doesn't save many words, and the reader has to backtrack to determine which was which. Just write out what you are referring to.

Which vs. That

“That” precedes information that is necessary to understand the rest of the sentence.
Fiske and Glick (1996) argued that benevolent and hostile sexism arise from the biological and social conditions that many societies share.

“Which” precedes information that is not necessary to understand the rest of the sentence.
The social dominance orientation scale, which had good reliability, predicted 80% of the variance in racial attitudes.

As a general rule, if changing "which" to "that" does not alter the meaning, then "that" is probably correct.

Because vs. Since. “Because” refers to the cause or reason for an outcome. “Since” refers to the passage of time.

“Because”: *Because there were no outliers in the data, we analyzed results from all participants.*

“Since”: *Since Steele and Aronson (1995) first demonstrated stereotype threat among African American students, researchers have replicated this phenomenon in many different groups.*

Less vs. Fewer

“Less”: Use to refer to collective noun (e.g., "less time").

“Fewer”: Use to refer to multiple items (e.g., "fewer copulations").

5. **Avoid noun strings** (piling up nouns in front of the noun they modify).

No: Type II motor skill nest building behavior

Yes: Nest building behavior involving type II motor skills

No: Prosocial interracial interaction behavior

Yes: Prosocial behavior during interracial interactions

6. **Needless words.** Make every word mean something. Eliminate unnecessary words. Avoid adverbs, such as "very," "quite," "rather," and "somewhat." These words are not quantitative and do not add helpful information.

Below are examples of words that are useless or incorrect in scientific writing, with suggested alternatives (notice that the “don’t use” column is wordier than the “better” column):

<u>Don't use</u>	<u>Better</u>
fact	evidence
prove	support
plays an important role	is important because
due to the fact that	because
a decreased number of	fewer
a great deal of	much
a majority of	most
a number of	many, some
a small number of	a few
time period, time interval	time or interval
longer time period	longer
larger in size	larger
brown in color	brown
round in shape	round
adjacent to	next to, near
has been shown to be	is
it is possible that	may
in case	if

in this case	here
in most cases	usually
in all cases	always
demonstrate, exhibit	show
utilize	use
in other words	thus/hence/therefore
former or latter	<i>avoid; makes the reader backtrack</i>
adverbs	<i>eliminate</i>
in this experiment/study	<i>eliminate</i>
it is interesting to note that	<i>eliminate</i>
it would thus appear that	<i>eliminate</i>
it may seem reasonable to suppose that	<i>eliminate</i>
Interestingly	<i>eliminate</i>
clichés	<i>eliminate</i>

7. **Proofread.** Your paper has your name on it. It represents you. Make sure that the hard work that you spend on the content of your paper is reflected in the literacy of your writing. Don't be responsible for careless errors such as these: *"The participants where divided intotwo groups eight. both groups was consented at the beginning of teh experiment.."*