Public Communication for Researchers

Scientific writing: because the facts can't speak for themselves

Judith A. Swan, Ph.D., Princeton Writing Program

1

a. Although Fred's a nice guy, he beats his dog.

b. Although Fred beats his dog, he's a nice guy.

c. Fred's a nice guy, but he beats his dog.

d. Fred beats his dog, but he's a nice guy.

e. Fred is a good husband, a caring father, a fine colleague, and an altogether nice guy, even though he beats his dog.

f. Even though he beats his dog, Fred is a good husband, a caring father, a fine colleague, and an altogether nice guy.

g. We should invest in the MRX plan, even though the risks are high.

h. Even though the risks are high, we should invest in the MRX plan.

i. Even though the risks are high, we should draw upon whatever funds are available and invest in the MRX plan.

2

a. This overall scope, though it might prove to be overly ambitious, is a great conceptual strength of the proposal.

b. Although this overall scope is a great conceptual strength of the proposal, it might prove to be overly ambitious.

3

a. This is an exciting, but somewhat flawed application from a creative investigator.

b. This creative investigator has produced an exciting but somewhat flawed application.

c. This creative investigator has produced a somewhat flawed but exciting application.

d. This creative investigator has produced a somewhat flawed but truly exciting application.

4

a. This is a lucid, well organized, clearly written proposal, submitted by an established investigator, to study [X].

b. This proposal to study [X], submitted by an established investigator, is lucid, well organized, and clearly written.

c. This lucid, well organized, clearly written proposal to study [X] has been submitted by an established investigator.

5

While the hypothesis from this highly qualified investigator is novel, the rationale is poorly justified, the studies lack the input of an expert in epidemiology, and a more simple approach should be used first to assess the validity of the primary hypothesis with preliminary data and reduction in cost and risk to the experimental subjects.

Rewrite these sentences to be more positive or more negative, changing only the structure

6

This current research effort by this investigator has been in progress now for more than six years, but, unfortunately, the productivity of the many studies has been disappointing.

7

Overall, however, this proposal is scientifically sound, but there is no innovation.

8

Four publications have been produced in the last funding period but they are not focused on the three specific aims in the previous proposal.

9

A series of indole derivatives have been reported to be melatonin antagonists although information on the method used for such classification is not provided.

10

This is a very short application with little experimental detail by two new investigators who are very well trained in mouse genetics.

Writing well in experimental science

Judith A. Swan, Ph.D., Princeton Writing Program

Writing well is hard.

Don't underestimate the time and energy it requires.

Writing is doing science.

The data never speak for themselves; they only appear to when the writer has structured the data into a form that makes the message visible. The unwritten experiment is as ephemeral as the unfinished one.

Writing is a process with discrete and different stages:

Prewriting differs from revision, which differs from invention/drafting; learn to recognize each stage and when it is progressing.

Writers don't matter; readers do.

Scientific documents are professional documents, and professionals are not interested in the writer – no one cares much about how hard you've worked, how brilliant you are, or how much you've improved. Professionals care about the science. Get over it.

The reader is always right.

Once the prose leaves the writer's hands, it belongs to the reader. If the reader understands it differently from the writer, the reader's interpretation is the only one that matters. The writer's job is to shape the readers' interpretation to the writer's intended message.

Readers use structure as instruction.

They interpret information based upon where in the writing it occurs, at all levels – in sentences, paragraphs, sections, documents, etc.

In general, give the readers what they need and expect when they need it.

Readers read linearly through time, from left to right, and their short-term memory is finite. They do not carry all the information along simultaneously and wait to interpret it; they interpret as they go, based on the information at hand. The more a writer understands how readers interpret, the more effectively the writer can shape that interpretation.

Writing is never good or bad in isolation; it's always in context.

Good writing communicates; bad does not – regardless of its correctness, elegance, or lack thereof. Don't separate the language from the thought; they're two sides of the same hand.

The only rule is there are no fixed rules.

Any expectation can be violated to good effect. Writing well requires judgment, not algorithms.

Sources: Elbow, Peter, *Writing without Teachers,* Oxford University Press, 1998
Gopen, George, and Judith Swan, "The Science of Scientific Writing" *American Scientist,* 78: 550-559, 1990.
Lamott, Anne, *Bird by Bird: Some Thoughts on Writing and Life,* Pantheon Books, 1994.
Williams, Joseph M., *Style: Towards Clarity and Grace*, U of Chicago Press, 1995.