Visiting Scholar Program – Research Writing

Writing techniques for grant proposals: An "easy read" for your reviewers

This post recaps the presentation on Sept 1, 2021 for the Visiting Scholar Program (see video and slide deck on the Department of Pediatrics Learning Resources page).

An expert panel discussion on Aug 4, 2021, hosted by the Department of Pediatrics and WCHRI, covered many strategic aspects of writing a strong research grant proposal.

Here are some ways to strengthen the writing itself in your grant proposal.

The key to strong writing is keeping reviewers engaged and happy as they read. Always remember that your reviewers are most likely tired, overworked researchers (just like you) who are reviewing numerous applications.

How can you make your grant proposal easy for your reviewers to read and understand?

- Help them understand the quality of your work, quickly and clearly.
- Help them see, quickly and clearly, why your work is a good fit for their funding goals.

Researchers who write strong grant applications and get them funded use effective writing techniques, making their applications easier for reviewers to appreciate.

Here are ***3 categories of effective writing techniques*** and examples of some ways that you can implement those techniques.

1. Give your reviewers a map

Why? Reviewers appreciate an overview or mental framework for your proposed research – an orientation to what they can expect and how it fits together. Think of it as a wayfinding map when you walk into a new, complicated building: not just useful to pinpoint your destination, but also the path to it and other useful locations in the building.

1a. Use visuals – In a visual, you can introduce research aims, key players (molecules, populations, organ systems, etc.), data flow and links among proposal components. Examples:

- An actual map of pathways and tissues in your research project. Add locations on the map for each of your aims, how you plan to inhibit or enhance pathways, molecules involved, etc. How do data from one aim relate to other aims?
- A flow chart for a clinical trial or multi-step experimental protocol with branches.

1b. Use informative headings – A map to keep reviewers oriented as they read through your proposal: headings, sub-headings, sub-sub-headings and more levels if they are useful in organizing your text.

The key word, though, is ***informative*** (not generic). For example, you can elaborate generic headings with informative details (what disease? what types of studies? what characteristics of populations?). You can also use questions in place of statements.

Informative headings give reviewers more information up front, keeping their interest. You can apply the same technique to create informative titles for figure and tables.

Here are some examples of informative headings (*and UN-informative versions*).

- The first problem: Vulnerable populations in an under-served setting (*Problem #1*)

- Why is *C. elegans* an excellent model system to study mitochondrial diseases? (*Model System*)

- An experienced multidisciplinary project team (*Team*)

- Aim 1: Identify symptoms and practices with the greatest impact on care and patient experience (*Aim 1: Symptoms and Practices*)

1c. Use topic sentences – Another way to keep reviewers oriented as they read.

Make the first sentence of each paragraph into your topic sentence. It will state the point or conclusion for all the information in that paragraph.

Why is this useful for reviewers? You are helping them to find information quickly when they are skimming your proposal or looking back while reading. Each topic sentence gives them advance notice of what to expect in each paragraph – a mental framework for understanding and appreciating the details of your arguments. The topic sentence is easy to find when skimming or searching for specific details.

Try creating a topic sentence for this paragraph. The current first sentence doesn't summarize the main point. You could create a new first sentence or move one of the existing sentences to the start of the paragraph.

> Enzymes classed as serine proteinases have an unusually reactive serine residue in the enzyme active site, which is key to catalysis. Essential histidine and aspartic acid residues work with the serine as the "catalytic triad." Two general families of serine proteinases are known: the chymotrypsin-like enzymes and the subtilisins. Members of both these families use the same mechanism of catalysis, but they differ completely in their 3D structure except in the arrangement of their catalytic triad. The two families are thought to have developed through convergent evolution.

2. Give your reviewers a break – Reduce their physical or mental burden in reading

2a. Simple formatting

Grant proposals almost always have limits on number of pages or number of words or number of characters. Grant writers often go to extreme measures to fit in all their crucial content, squashing everything together. **Why is this counter-productive?**

- Reviewers need to differentiate parts of your proposal.
- Reviewers need mental and visual breaks to maintain focus.
- Reviewers need cues for a new section or topic or paragraph.

Simple formatting adds white space between sections and sub-sections and paragraphs. You can add extra lines between items, or use the options for paragraph formatting in your word processing program to add, for example, 6 pt spacing after each paragraph.

Simple formatting also differentiates headings and sub-headings and sub-sub-headings with combinations of **bold** and *italic*.

This document uses different amounts of white space and different format styles to differentiate headings from sub-headings and from regular paragraphs.

2b. Shorter and simpler sentences, with 1 idea per sentence

Reviewers can grasp your ideas more easily in a simple sentence. Reviewers can get lost in a sentence when it is too complex or too long.

What makes a sentence ***too complex***? Does it have multiple parts, separated by commas and semi-colons and dashes? Does it have multiple items in brackets (or nested brackets)?

What makes a sentence ***too long***? Does it take up more than 3 lines on a normal page? Does it include long lists of items or examples?

What to do? Long, complex sentences can simply be converted into 2 (or 3 or 4) shorter and less complex sentences. Try breaking this very long, complex sentence into a series of shorter and less complex sentences. *Hint: It's difficult because the writer got lost, too.*

> There is an agreed upon importance to enhance research and partnerships by: harnessing big data from cohort studies, genomics and other "-omics" such as proteomics, metabolomics, microbiomics, epigenomics; clinical, social and other records; new drugs and other therapies; artificial intelligence; and address unmet needs (e.g. research with Indigenous communities, research on the social determinants of health and health inequalities, positive health and well-being, policy-driven research, patient-oriented research, precision medicine, parental health, environmental health, mix-method research, and qualitative research).

3. Give your reviewers reasons to care

Writers of strong grant proposals know that the first impression for their reviewers is crucial. When reviewers start reading a grant proposal, they want to know "Why should we care?"

You have 3 prime locations to tell reviewers immediately why they (and the funding agency and Canadians) should care.

3a. In your summary page

The summary page is another map for reviewers. It outlines all the sections of your proposal.

The highlight of this map is concrete information on why your proposed research is important, significant, high impact, and worth spending grant money to do.

The summary page is likely the first part of your grant application that your primary reviewers will read. It may be the *only* page that most people on the review committee will read, so be sure that it gives them all the *crucial reasons to care*.

To make your summary page an "easy read," you can apply the same techniques that we've already discussed (except visuals): informative headings, topic sentences, simple formatting, and sentences that are extra short and simple.

3b. In the first page of your proposal

The first page Is not the same as the summary page! It doesn't include information on all parts of the proposal. The first page expands on your goals and why the research is worth doing.

Elements of a strong first page
- a short, informative, striking opening sentence that gives immediate context
- the overall goal of the research
- why the research is important and relevant
- how the research fits with your previous work
- the hypotheses or research questions, and how you will approach them
- a brief outline of specific aims and methods
- expected outcomes and potential impact, to remind reviewers of the bigger picture
- your visual map (category #1, above)

Simple, brief explanations for each element make it easy for reviewers to understand what you plan to do, why it will have high impact, and *why they should care* – why it's worth funding.

Convince reviewers that your research is logically the best possible work to do in this field at this time.

3c. In your hook – A short, informative, striking opening sentence that gives immediate context for your reviewers

Your hook catches the interest of you reviewers and indicates how your research is part of solving a larger, very important problem.

Ideally, your hook makes reviewers think "Wow, I didn't know that! Tell me more!"

Examples of hooks
- Protein folding is a pivotal biological process in both health and disease.
- Glaucoma is a common as heart disease.
- Autism is the most severe form of a spectrum of neurodevelopmental disorders.

4. Further resources from RSO on writing for reviewers

How to write clearly for the reviewer

How to write a striking summary page

Writing a successful research summary for CIHR grant applications

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