

Writing your thesis proposal

A reviewer's perspective

Introduction (1)

- It sets the stage for your scientific argument.
- It places your work in a broad theoretical context to help readers appreciate your objectives.
- A good intro HOOKS its readers (significance).
- You need a good understanding of the literature, goals, aims, and relevance.

Introduction (2)

- Proceed from the general to the specific.
- You can sketch out a framework for the study, orient your readers, and prepare them for what is to follow.
- Do NOT make the Intro TOO broad or TOO detailed.
- Do NOT show off your knowledge of the literature.

Introduction (3)

- Relevant questions to address in the Introduction:
- How does your work fit in with that of other researchers?
- What **SPECIAL** problem does your study address?
- What **new** info will you try to gather?
WHY?!!!

Writing the Intro is sort of an art

- You need practice.
- First, try to establish the contents of each paragraph.
- Write each paragraph.
- Once written down, wait 12 hrs, re-read, re-write, wait 12, re-read, re-write, etc.
- Please, do NOT send to your advisor a ROUGH draft just to justify you have worked on it.

Materials and methods (1)

- Rule of thumb: **include enough information so that your study could be repeated.**
- The credibility of your scientific argument depends on how clearly you have explained your procedures.
- If you use animal/human subjects, give their age, sex, and all other characteristics.

Materials and methods (2)

- Describe your apparatus, tools, sampling devices, growth chambers, animal cages, or other equipment.
- Specify the composition, source, and quantities of chemical substances, growth media, test solutions, etc.
- If you use a **NEW** method (or variation of an existing one), describe it in **FULL** detail.
- **FULLY** describe your statistical analyses and how they are related to your goals!

Organize your material logically

- **Faulty:** Golden hamsters used for this research were adult males. Temperature conditions were kept at 22C. Animals were fed Purina chow. Hormonal studies were performed on 23 individuals. The photoperiod was 16 h. Animals were housed with littermates of the same sex, and feeding was once each day. All hamsters had been weaned at three weeks.

- **REVISED:** Hormonal studies were performed on 23 adult male golden hamsters. All had been weaned at three weeks and housed with littermates of the same sex. They were reared under conditions of 22C and a photoperiod of 16 h and were fed Purina chow once daily.

The same info can be conveyed using FEWER words.

ALWAYS KEEP IN MIND

- Faculty reviewing your proposal are **EXTREMELY** busy.
- Reading your proposal makes them divert time and energy from things their top priorities.
- Make the time they spend reading your proposal easy and enjoyable.

Use specific, informative language

- Give your readers as much info as you can.
- Replace vague, imprecise words with more specific ones.
- Quantify your statements wherever possible.
- Examples...

- **Vague:** I observed some monkeys in a large outdoor enclosure and others in small, individual cages.
- **Specific:** I observed 12 monkeys in an outdoor enclosure (10 x 8 x 12 m²) and 12 others in individual indoor cages (1 x 2 x 1 m²).
- **Vague:** Root nodule tissue was stained with a number of histochemical reagents.
- **Specific:** Root nodule tissue was stained with toluidine blue, Schiff's reagent, and aceto-orcein.

Omit unnecessary information

- Include only those procedures directly related to the results you plan to present.
- Readers are not interested in superfluous details.
- Example: Fathead minnows were collected from Lost Lake, near Holmes, North Carolina, and transported back to the third-floor laboratory in large white pails. One the following Tuesday morning, skin for histological examination was taken from the dorsal part of the fish just behind the anterior dorsal fin.

Avoid excessively long or short paragraphs

- Paragraphs define a collection of thoughts or ideas that are all closely related to a given subject, topic, or domain.
- Long paragraphs makes the mind 'revolt'.
- Short paragraphs shows that the ideas presented are the result of an afterthought rather than an incisive discussion of ideas.
- Ideal 3-4 paragraphs per page (single spaced).

Be judicious in the use of emphasized text

- You can draw attention about certain exceptionally important ideas by *emphasizing* text.
- Very effective technique.
- However, do not go over 1% of the total text.
- Always use the same kind of emphasized text.
- Do not use capital letters!

Avoid complicated sentences

- Write simple, clear, declarative sentences.
- Studies show that when sentences go over around 35-40 words, the human mind has trouble understanding them.
- Consider using periods instead of commas if you tend to write long sentences.

Avoid the use of empty generalities

- Specific detail plays a tremendous importance in establishing the credibility in anything that is described in the proposal.
- Examples of empty generalities:
 - “The proposed state-of-the-art study is expected to advanced the field significantly”
 - “It is essential that we define the impact that drug X has on the retention of cognitive function”

Avoid the use of “weak” words (1)

- Some words convey **doubt** or **uncertainty** in your ability to do something.
- Weak words: if, try, hope, might, could, may.
 - if I am able to do X, I would be able to do Y.
 - I will try to overcome the problem...
 - I hope to obtain Y by doing...
 - I believe [pray?] that I would be able to do X.

Avoid the use of “weak” words (2)

- **Expect** is a much more positive and assured term that conveys that you are going to try your best while still leaving open the possibility that you might not succeed.
 - I expect to overcome the problem...
 - I expect to obtain Y by doing...
 - I expect I would be able to do X.

Be careful with the word “whether”

- It is another type of weak word.
- Whether conveys certain doubts.
- Whether or *not*...
- Not conveys the meaning of **failure**.
- What if not?
- Use “the extent to which”, since its meaning ranges from 0 to 100%.

Choose your words carefully

- Words commonly misused:
- Assess/access, affect/effect, alternative/alternate, because/since, complement/compliment, led/lead, principal/principle, rationale/rational, validate/prove (with respect to an hypothesis), which/that.
- Use of singular/plural: criterion/criteria, datum/data, medium/media, phenomenon/phenomena.

Take-home

- Reviewers do like when you pay attention to detail.
- Science is ALL about detail.
- Your paying attention to detail means you have what it takes to become a good scientist.

Plan your writing **AHEAD** of time

