Proposal Writing II

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Workshop Overview

- Proposal components
  - Title
  - Project summary

- Competitiveness
  - Structure
  - Pitfalls
What’s in a name?
Purpose of Titles

- Introduce reader to framework and perspective
- Prepare the reader for the desired focus
- Capture the reader’s attention
  - Reviewer may begin with most intriguing titles
  - Get the reviewer when freshest and most receptive
Titles Should Be

- Original
- Written in plain language
  - Keywords that help classify the proposal
  - Results-driven rather than descriptive words
- Use active verbs that point to the outcome of the research
- Clear, concise, and meaningful
  - Too descriptive may appear narrow
  - Too broad may appear unachievable
- Viewed as a work in progress
Titles Include

- Dependent and independent variables
  - summarize under general rubric
- Performance component represented by criterion task
  - summarize into single categorical term
- Treatment to be administered
- Model underlying the study
Titles Include

- **Purpose of the study (can be implied)**
  - *Study of relationship*: “Anthropometrics, Swimming Speed, and Shoulder-Girdle Strength”
  - *Study of differences*: “Anthropometrics and Shoulder-Girdle Strength of Fast and Slow Swimmers.”

- **Any unusual contribution of the study**
  - *Length or magnitude*: “Longitudinal Analysis of Human Short-Term Memory from Age 20 to Age 80”
  - *Creative method*: “Hand Preference in Telephone Use as a Measure of Limb Dominance and Laterality”
  - *Unique sampling technique*: “Intelligence of Children Whose Parents Own Personal Computers.”
Elements to Exclude

- Population, research design, instrumentation (unless they represent a substantial departure from similar studies)
- Eliminate redundancies
  - Aspects of
  - Comments on
  - Study of
  - Investigation of
  - Inquiry into
  - An Analysis of
Sample CAREER Titles

- Characterization of Cognitive Models of Conceptual Understanding in Practicing Civil Engineers and Development of Situated Curricular Materials
- A Neurophotonic Platform for Causal Brain Analysis
- Selectivity Control in Methanol-to-Hydrocarbons Catalysis by Manipulating the Hydrocarbon Pool
Other Titles

- Biosensing Of Non-coding RNAs Using Nucleic Acid-based Technology
- Optimization of Carbon Nanotube Based Chemical Sensors Through Micro-Raman Enabled Defect Analysis
- The Role of Relative Submergence on Flow-Obstacle Interaction: Implications to Sediment Transport
Writing Your Title

- List all appropriate elements and weave them into various permutations.
- Rework your title to clarify, shorten, make more precise
- Ask yourself
  - Is it understandable?
  - Is it easy to guess the content of the proposal based on the title?
  - Would a few word changes make it more interesting or effective to a non-specialist?
The challenge of concision

PROJECT SUMMARY
Purpose of Project Summaries

- Determine which panel will review
- Grab the reviewer’s interest and generate enthusiasm
- Frame the goals and scope of your study
- Identify the need for and innovative features of the research and expected outcomes
- Demonstrate importance of the work
- Show you have what it takes
Abstract Assumptions

- Assume the reviewer is bored from reading dull proposals
  - Your abstract needs to wake the reader up!
- Assume the reviewer has already read more good proposals than can be funded
  - You must quickly convince the reader that your project deserves consideration
- Assume your proposal will be funded
  - The abstract will be published; what do you want the world to know about your project?
Project Summaries Are

- The most important part of your proposal
- A template or guide to the proposal
- Written for a non-technical audience
- Public if funded
- The last section to revise
Project Summaries Include

- What is your research objective?
- What is your approach?
- How will the results be evaluated?
- How does the proposed project relate to the sponsor's interests?
- Why is your contribution important to your research community?
- Why should you, rather than someone else, do this project?
- If successful, what will be the benefit to society? What difference will the project make to: your university, your students, your discipline, the state, the nation, etc.?
Exercise

- Review sample NSF project summary
  - What are the strengths of the summary?
  - How could it be improved?
- Propose a title for the project
Is your plan persuasive?

PULLING IT ALL TOGETHER
Capture and Keep Attention

- **Organize**
  - Offer road maps to keep reader headed in the right direction

- **Highlight**
  - Don’t bury critical information
  - Don’t emphasize ideas that are less important

- **Funnel**
  - From the big picture to research specifics

- **Focus**
  - Avoid information that detracts from or dilutes your message
  - Avoid repeating yourself
Write with the Reviewers in Mind

- Reviewers:
  - Are tired and overworked
  - Probably wear bifocals
  - May be reading your proposal at 2 am after reading four other proposals
- Make it easy for them and they will love you
  - Follow directions
  - Clearly address review criteria
  - Include lots of headings, figures, white space
  - Write for a technically literate person who is not an expert in your subfield
  - Put the main idea or conclusion up front, then expound
Consider Your Audience

Reviewers have:

- Many proposals to review
  - Ten or more from several areas
- Limited time for your proposal
  - 20 minutes for first read
- Different experiences in review process
  - Veterans to novices
- Different levels of knowledge in field
  - Experts to outsiders
World’s Most Accurate Pie Chart
Reader-friendly Writing

- Don’t sacrifice white space to cram in more text.
- Use headings to signal what will follow
  - Different headings signal new grouping
- Each point should follow logically from the previous one
  - Paragraphs herald the beginning of a new thought
- The content of each sentence, paragraph, or section should be as complete as possible.
  - Don’t make reader search for material
- Consider including a key to abbreviations at the beginning of the proposal
Sweat the Small Stuff

- Punctuation matters!
- A woman without her man is nothing
- A woman, without her man, is nothing.
- A woman: without her, man is nothing.
Storytelling

- Tell a story that
  - unfolds in a way the reader can follow,
  - doesn’t violate the reader’s sense of logic, and
  - makes the reader want to know what will happen next.
- Communicate your excitement
- Good science is interesting
"I never make predictions, especially about the future."
*Samuel Goldwyn*

"Sometimes you can observe a lot just by watching."
*Yogi Berra*

"If we do not succeed, we run the risk of failure."
*Former Vice-President Dan Quayle*
Aristotle’s Rhetorical Triangle

The persuasiveness of any communication is shaped by

- Logos – a clear, logical message
- Ethos – credibility, legitimacy, and authority of the speaker
- Pathos – eliciting empathy by stirring the emotions, values, and imagination of the audience
PERSUASION

Proposal Logics
- Specific measurable activities that will help solve the problem
- Clear connection between proposed project and sponsor’s goals

Applicant Credibility
- Of the organization, individual, and project
- Differentiate from competition

Proposal Psychologics
- Respond to sponsor’s emotional needs/values
- Display trust, energy, passion, ownership, and commitment
Reviewer’s Questions

• What is the significance and originality of the proposed research?
• Are the aims logical?
• Is there a valid hypothesis to be tested?
• Are tests of the hypothesis feasible?
• Would such tests produce new data?
• Is the PI qualified and competent in the field?
Reviewer’s Questions

- Is there a high probability of success?
  - Sharp focus on important problem
  - Clearly defined experimental model
  - A few specific, testable hypotheses
    - Hypotheses are part of a theoretical model
    - Tests of the hypotheses are feasible, definitive, and within the PI’s apparent expertise
NIH Tips for Applicants

- [Link to YouTube Video](http://youtu.be/9cNRMsCGfHo)
POTENTIAL PITFALLS
Return Without Review

- Inappropriate for funding by the agency
- Not responsive to program announcement/solicitation
- Doesn’t meet specific requirements such as deadline, length, formatting, etc.
- Submitted with insufficient lead time before the project is to begin
- Submitted after receiving a “not invited” response to a pre-proposal
- Duplicate of a proposal already under review or already awarded
- Not substantially revised after previously reviewed and declined
Mechanical Problems

- Document not legible, logical, and reader friendly
- Poor page space planning
  - Too much text devoted to complex details or prior work
  - Inadequate attention to proposed new effort
- Poor quality of writing
  - Grandiose claims
  - Convoluted reasoning
  - Excessive repetition
  - Grammatical errors
Methodological Problems

- Completely traditional approach with nothing unusual, intriguing, or clever
  - Incremental vs. innovative
- Proposed method unsuited to the purpose of the research
  - Unacceptable scientific rationale
- Overly ambitious given available time and resources
- Unclear in describing elements of the study
  - Problem not clearly articulated
  - Unfocused research plan
    - Many unrelated subtasks
    - Insufficient experimental detail
Personnel Problems

- Literature review reveals limited knowledge of the territory
- Proposed study appears to be beyond PI’s training, experience, ability, and resources
- No evidence of relationship with or support from essential collaborators
- The PI took highly partisan positions on issues and became vulnerable to reviewers’ bias
Cost-Benefit Problems

- Not an agency priority for this year
- Budget unrealistic in terms of estimated need for equipment, supplies, and personnel
- Project cost appears greater than any possible benefit to be derived
- Uncertainty about future directions
  - What is the theoretical or practical benefit that extends beyond the project?
  - How will you use the project to continue work in this area?
STRATEGIES
**Problem**

- The problem is not of sufficient importance or is unlikely to produce any new or useful information
  - Highlight impact not just to subfield but to larger and other fields
  - Clearly identify novelty and distinguish your approach from others
    - It is not enough to claim innovation and significance; offer evidence
  - Consider both empirical and theoretical contributions that may emerge
    - Identify basic and applied uses of the data
    - Link methods to expected outcomes and other valuable results
  - Show how your work will address concerns specific to the agency
    - Who are they accountable to?
    - What are their strategic priorities?
Approach

- The proposed methods are unsuited to the stated objectives.
- The description of the approach is too nebulous, diffuse, and lacking in clarity to permit adequate evaluation.
  - Explain the logic and rationale of the chosen experimental approach
    - Persuasively justify the selection of methods
    - Clarify how the data gained will relate to the objectives
  - Create a table or figure that links hypotheses, methods, and objectives
  - Articulate plans to reduce and interpret the data, explaining what they will mean in terms of the hypotheses
  - Discuss alternatives, potential problems, and possible solutions
  - Address reliability of methods
Investigator

- The investigator does not have adequate experience or training for this research.
  - Clearly describe methodology with which you have little experience and include co-investigator for those modules
  - Demonstrate strong relationships with collaborators and a robust support network
  - Present pilot work of critical procedures that are complicated and/or time consuming
  - Provide evidence of your ability to coordinate and complete large projects
  - Develop discriminating lit review that includes works in progress and personal communications with investigators to show your professional activity and knowledge of what is currently happening and what is going to happen
Mechanics

- **Return Without Review**
  - Carefully read entire solicitation, appendices, and guidelines

- **Illegible, illogical document**
  - Create white space, add graphics, use headers & lists

- **Poor quality of writing**
  - Proofread for errors, logical flow, redundancies
  - Allow adequate time for multiple reviews and revisions
Overall strategies

- Remember the cornerstones of good research
  - Important questions
  - The best and most appropriate methods
  - Appropriate analysis and application of results
  - Synthesis and timely dissemination of results

- Promise success through
  - Clarity of presentation
  - Sharp focus on important problem
  - Clearly defined experimental model
  - A few specific, testable hypotheses
Rejection Happens

- 75-90% of proposals are rejected
- Very few first applications are funded
- Re-submissions do succeed
  1. 8%
  2. 28%
  3. 47%
- Rejections offer a learning opportunity
  - Study reviewer comments carefully
    - Reviewers are not always wrong
  - Share with your college grant coordinator
Analyzing the Reviews

- Did the reviewers have particular concerns that you can address?
- Were the reviewers confused or unclear about your project?
- Were the reviewers unimpressed by the significance or novelty of your research idea?
- Were the reviewers generally favorable, with no clear issues brought up?
- Did the project topic not fit the program?
- Be careful about chasing one comment by one reviewer – look at the Panel Summary
Call the Program Officer

- Be nice!
- Ask for clarification of reviewer comments
- Ask for advice
  - Should you resubmit?
  - Should you apply to a different program?
  - What would strengthen your proposal?
Should You Revise and Resubmit?

- Re-assess your time and commitment
- Decide if the project is still relevant and important
- Consider your options
  - Resubmit next year to the same program
  - Resubmit next year to a different program
  - Use next year to revamp your project, generate preliminary data, and resubmit the following year
  - Revamp and submit to a different agency
  - Start again with an entirely new idea
- Volunteer to be a reviewer
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