Guidelines for Writing Proposals for Grants and Funds

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Abstract

With the financial constraints under which most universities are working today, educators must depend upon outside revenue to provide equipment and other resources for effective teaching. Educators must raise their own funds to meet their needs for research and teaching, so they are compelled to write proposals for grants. Grants and other funding are increasingly becoming difficult to obtain. To be competitive for funding, an educator must submit a strong proposal that creates a good first impression to the reviewer. A proposal that is well written, clear, and easy for the reviewer to read and understand generally has a better chance of being funded than one that is poorly written.

Since many engineering educators have little background in writing, this paper gives guidelines for creating a strong proposal to prospective authors. General appearance of the proposal, including graphs, figures, and charts, is an important part of writing a successful grant. Common errors in writing are included, and basic rules for most frequently misused grammar are given with a discussion of words, sentence structure, and paragraph organization. General references that can be used in preparation of proposals are included. The various sections of a proposal, such as the budget, are reviewed with information on types of material to include in each. Additionally, general advice for first time authors is included. Following these basic guidelines will aid in the writing of a successful grant proposal.

What Is A Grant?

A grant is an award of money for an idea or project. Grants are given for research, training, service, education, etc. Grants may cover all costs associated with a project (direct costs) or may include money to help defray administrative costs at the university (indirect costs). Granting agencies include the government, which is the m-ost abundant source of funds; private foundations, which are generally for specific interests; and business and industry, which often require contracts and carefully monitor the research or project to see that the business' goals are being met.

A successful grant writer is one who has a good projector research idea, has goals that are consistent with the granting agency, has carefully thought through the project plan, and has a strong, well-written proposal. Even though the project or research idea maybe outstanding, the granting agency must have the same goals before a grant will be awarded. Before spending time and effort writing and submitting a proposal, the writer should check to be sure the granting agency or business is interested in the research idea or project and for any written instructions along with deadlines for submission of the proposal.[1]

Sources of Support

A search for money must start with an idea for research or for the use of the requested money. A knowledge of the sources of money for education and research is basic to obtaining funding to meet the educator's needs. Many universities have an Office for Sponsored Research or an Office of Grants and

Contracts. The research office may publish a monthly bulletin of available grants, maintain a list of granting agencies, and/or list grants given by the university. Another excellent resource is the university library where one can find various information services which provide details about grants or contracts from the federal, state, and local governments, business and industry, intrauniversity funds, and other sources. Also, the Internet and computer services such as e-mail provide information on available grants from many sources. To help prospective grant writers write a successful proposal, numerous workshops and guides are available and can be located either in the library or through computer sources.[2]

Writing A Successful Proposal

A successful grant proposal is one that receives funding regardless of the importance of the projector research. Although most submitted proposals present good, solid ideas, all can not be funded. Proposals based on weak ideas for research or projects generally are not funded. Although a poorly written proposal maybe funded if the idea is truly outstanding and the investigator has excellent credentials, most proposals that are poorly written are rarely funded. The successful proposals are those that can be sold to the granting agency. A proposal that is well written and easy for the reviewer to read and understand is more likely to receive funding.

The review process generally consists of assigning the proposal to primary reviewers and secondary reviewers. The primary reviewers will look at the proposal and give it a full review in most cases; however, secondary reviewers often glance through the proposals and look only for major details. Two sections of a proposal all reviewers concentrate on are the budget justification and the biographical sketches that give information about the prospective researchers. Therefore, the budget and the biographical sketches must show what the writer wants all the reviewers to see in a glance. All sections of the grant should be easy to read, and major points should be prominent for the reviewers.[3]

The appearance of the proposal is of utmost importance since the first impression the proposal has for the reviewer is crucial to the full review. General rules for the appearance of a successful proposal follow.[1,3,4,5]

- ooo Use a word processor or desk top publisher to prepare the proposal.
- ooo Each page should have the same appearance, i.e. same fonts, printer.
- ooo Each page should be an original, not a photocopy of an older document.
- ooo Charts and graphs with proper titles add to the quality of the proposal.
- ooo Indent and use headings and double spacing between sections when possible to make the proposal easier to read.
- ooo Do not fill every possible space with words; use recommended font size (12 if one is not specified).
- ooo Follow all guidelines for format of the proposal. Do not deviate from page restrictions, section order, and other requirements.
- ooo Use titles and diagrams to increase the ease of review.
- 000 Double space between paragraphs.
- ooo Make sure there are no TYPOS or other inconsistencies in the paper.
- ooo Good writing is concise and to the point; present only essential material.

Parts of A Proposal

Although each funding agency will have specific requirements for grants, most proposals will include the following sections: abstract; problem statement, rationale, and specific aims; background and significance procedure, research plan, or experimental design and methods; budget and budget justification; literature cited, and biographical sketches of key personnel. If there are consultants or other contractual arrangements, letters from each indicating the willingness to participate should be included.[1,3]

Abstract

The abstract may be the only section of a proposal that some reviewers read. The abstract needs to be concise and attract the attention of the reviewers. A brief overview of the proposed project with a summary of the specific aims of the project should be included. Do not make the abstract a table of contents by listing the sections of the grant.

Problem Statementor Rationale

The problem statement is as important as the abstract and should contain the idea that is to be developed. The objectives or goals for the project should be clear. A reviewer should be able to read this section within three minutes and understand the significance of the project.

Background and Significance

The background section contains reference to prior work in the area of the proposed project. The section should contain relevant information to illustrate why the project is important, that it is feasible, and how the investigator is capable of completing the project. A diagram to summarize related work and show how the proposed work can be completed will help the reviewer understand the significance of the project.

Procedure

This section of the proposal includes a logical, organized, and detailed explanation of the procedures that will be used to accomplish the objectives of the project. The procedure section may include a technical plan and a management plan. A technical plan includes highly specific details of the methods, tests, instrumentation, quality control, materials, design approach, and special techniques. A management plan includes a description of key personnel with their qualifications to accomplish the goals of the proposal. Also, include organization support or collaborative effort; resources, such as equipment, space, laboratories; and schedule for completion of the proposal in the procedure section. Tables or diagrams used to simplify the explanation are welcomed by reviewers.

Figures and Tables

Whenever possible, include figures or tables to communicate complicated ideas and help the reviewer through the proposal. Use attractive figures and tables that are clear and easy to understand without reading long explanations. Numerical data presented in tables or figures are generally faster to scan and easier to visualize than when presented in text form. Tables can be used to present much information in a relatively small amount of space. Figures are graphs, charts, photographs, or illustrations such as drawings. Graphs can be used to show general trends, movements, changes, comparisons, and significance of the data more readily than a table.

When using figures or tables, always give an introductory explanation in the text of the proposal and indicate the importance of the data. Locate the figure or table after it is introduced with a short explanation in the text. Terminology should be consistent with only one type of information given in each table or graph. Each figure or table should be given a number with a title, i.e., Figure 1. Title, or Table 2. Title. Use consistent format for placement of titles; titles maybe centered over tables and maybe left-justified or centered under figures. Since many readers scan the titles before looking at the information in tables or figures, be sure the title both identifies and explains the figure or table.

Literature Cited and References

Include appropriate references relevant to the proposed work in addition to the literature cited in the proposal. Sufficient references to show familiarity with the area are necessary.

Budget and Budget Justification

Every reviewer studies the budget and the budget justification. Follow instructions carefully and be realistic when preparing the budget section of the proposal. The budget should logically follow the narrative. The investigator should be realistic and request sufficient funds to complete the project but not such extravagant funds that the reviewers rule in favor of other proposals. Each item should be fully justified with words and numbers. Follow grant guidelines when requesting equipment, supplies, and personnel.

Other Material

Additional supporting materials should be added only as necessary. Letters from consultants agreeing to participate in the project are important for documentation. Documentation of financial commitment from industry or other sources will strengthen the proposal and may favorably influence the reviewers and granting agency.

Points To Remember When Writing A Grant Proposal

Reviewers generally prefer to read a clear, straightforward grant proposal. Below are suggestions which have been taken from numerous sources over a period of years for writing the type of proposal preferred by most reviewers.

- ooo Use simple words; eliminate unnecessary words or phrases.
- ooo Use straight-forward, short sentences.
- ooo Use simple sentences with occasional complex or compound sentences intermingled to break the monotony.
- ooo Begin a compound sentence with the most important phrase.
- ooo Use short paragraphs that have the main idea in the first or topic sentence.
- ooo Avoid ambiguity with misused or misplaced modifiers.
- ooo Avoid the use of pronouns that can be misunderstood. "It has been thought---"
- ooo Be specific by using numbers rather than vague words, such as "65% of students" rather than "most students".
- ooo Write with a positive view rather than a negative one.
- ooo Avoid redundant words.
- ooo Be consistent in style - use headings and sub-listings to increase readability.
- ooo Write in the same person. Decide whether to use first person, I, we, etc., or third person, the investigator. Generally, technical writing requires third person.
- ooo Subjects and verbs must agree, singular or plural.
- ooo Verb tense should be consistent, usually active. The question of who or what is doing the action is answered up front with active voice. -
- 000 Terminology should be consistent throughout the proposal.
- ooo Avoid jargon and clichés; use abbreviations and acronyms sparingly. If they are used, write the words the frost time the expression appears in the document followed by the abbreviation or acronym in parenthesis. For example, does ATM mean asynchronous transmission mode or automatic teller machine? Each reviewer may have a different interpretation.
- ooo Avoid irrelevant information.
- ooo Omit pejorative language, insulting terms to refer to race, sex, nationality, religion, etc., such as master or slave modems.
- 000 Omit gender specific terms, such as man-hours.
- ooo Use a logical presentation. Discuss any figures or tables used.
- ooo Never assume reviewers will know what is meant by terms and specific language. Be clear; leave nothing to speculation or doubt.
- ooo Make sure grammar and spelling are correct.

<u>Common Errors in Technical Writing</u>

Good technical writing is simple, clear, accurate, complete, concise, and direct, Above all, both grammar and spelling must be correct. Some common faults in writing are given below.[4,5,6]

ooo Subject - verb do not agree. Phrases or clauses between subject and verb may be confusing.
  Amounts, such as two gallons, generally require singular verb.
  Collective nouns such as group require singular if expressing unity and plural if expressing individuality.
    "Data is" is used when expressing unity.
    "Data are" is used when speaking of individual data.
  Compound subjects connected by "and" require plural verb.
  Compound subjects connected by "or" require singular verb.
000 Ending a sentence with a preposition is considered informal writing.
ooo Pronouns must agree in number and gender with the antecedent. Masculine antecedent (man) requires a masculine pronoun (his).
  Plural pronoun (members) requires plural pronoun (theirs).
ooo Commonly confused words or phrases are:
  Accept/except, principal/principle, it's/its, advert/avert, lie/lay, discreet/discrete, explicit/implicit, farther/further, fewer/less, flammable/inflammable/nonflammable, imply/infer, in/into, insoluble/insolvable/unsolvable, loose/lose, medium/media, stationary/stationery, there/their/they're, to/too, effect/affect, since/because, data/datum, insure/ensure.
ooo Action verbs should be used rather than abstract nouns, "acquire the part" rather than "acquisition of the part".
ooo Double negatives such as, not---except, not---often, should be avoided.
ooo Split infinitives, verb form that contains the word" to", may be confusing.
ooo Dangling or misplaced modifiers can be confusing; keep them close to the words they modify.
ooo Avoid indefinite reference words such as "the latter" or "this".
ooo Doubling prepositions, "of from", is incorrect grammar.
ooo Remember punctuation rules; misplaced commas or other punctuation marks can lead to confusion.

Use a general guide for writing for examples of correct grammar and punctuation such as <u>Elements of Style</u> by William Strunk and E. B. White or an on-line application such as Grammatik.

<u>Writing The First Grant</u>

For new grant writers, the first step in writing a proposal is to write down all that is expected to be accomplished with the work. Then, list the questions that are to be answered with the research or proposed project. From this, the hypothesis and specific aims part of the proposal can be written. Use figures and tables wherever possible. Prepare all tables and figures before the proposal is written and use these as a guide for the sequence of the proposal. Always refer to all tables and figures in the text. Make a list of other material essential to each section of the proposal. Be specific and make an outline of the content for each paragraph in each section of the proposal. By adding to the detailed outline, the proposal can then be written.

Planning and outlining the proposal are the most important phases of writing, and extra time spent on these tasks will result in a stronger proposal. Working with a deadline in mind, write the proposal. After the initial draft is written, revise what has been written. Revising is the second most important part of the writing process. Work in stages, and revise as each part of the proposal is written. Finally, when all parts are written and revised, spend time to make sure the proposal is consistent, clear, and contains no errors. Ask a colleague to critically review the final proposal.

The following are some suggested resources and references which provide useful information to first time grant writers.

Bauer, D. R. 1993. The "How To" Grants Manual: Successful Grantseeking Techniques For Obtaining Public and Private Grants. American Council on Education, Series on Higher Education. Phoenix, AZ: Oryx Press.

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Trumbo, B. E. "How to Get Your First Research Grant," Statistical Science, Vol. 4, 1989, 121-13.

Remember, a strong proposal is one which receives funding; a funded proposal is generally clear, concise, easy to read and understand, and sells itself.

References

1. Reif-Lehrer, Liane. 1995. Grant Application Writer's Handbook. Boston: Jones and Bartlett Publishers.

2. Bauer, D. R. 1993. The "How To" Grants Manual: Successful Grantseeking Techniques For Obtaining Public and Private Grants. American Council on Education, Series on Higher Education. Phoenix, AZ: Oryx Press.

3. Ogden, Thomas E., and I. A. Goldberg. 1995. Research ProDosals: A Guide To Success. New York: Raven Press.

4. Brusaw, Charles T., G. J. Alred, and W. E. Oliu. 1993. Handbook of Technical Writing. New York: St. Martin's Press.

5. Eisenberg, Anne. 1992. Effective Technical Communication. New York: McGraw-Hill, Inc.

6. Tichy, H. J. 1988. Effective Writing for Engineers, Managers, Scientists. New York: John Wiley& Sons.

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