

*Writing from the
Winner's Circle: A Guide
to Preparing Competitive
Grant Proposals*

*By
Dr. David Stanley*

Sumário

PREFACE	4
PREFACE TO FIRST EDITION.....	5
THE TWO SIDES OF PLANNING	7
Chapter 1.....	7
SELECTING AND PRIORITIZING PROJECTS	8
Chapter 2.....	8
PRIORITIZING PROJECTS: A PERSONAL GLIMPSE	9
FROM IDEA TO PRODUCT: PRODUCING A COMPETITIVE GRANT PROPOSAL.....	9
Chapter 3.....	9
Who is going to write the grant proposal?.....	9
Who is going to type the standard forms?.....	10
Who is going to do the budget?	10
Who is going to produce the final form of the proposal?.....	11
A Note on Planners.....	11
AGENCY FUNDING ARE DETERMINED BY VALUES AND NEEDS: THEIRS, NOT OURS.....	13
Chapter 4	13
The first deadly sin: mismatched values	13
Some examples.....	13
Here's another example.	13
The competitive edge.....	14
The second deadly sin: mismatched needs.....	14
Matchmaking: designing our proposals	15
The first path.....	15
Eliminate some agencies	15
The second path.....	16
Look more closely.....	16
What do they need?.....	16
Seed money	17
Same theme applies	17
Why should anybody pay to have this work done?	17
Why should anybody pay to have us do this work?.....	18
A couple of big points bear heavily on this issue.....	18
Establish credentials	18
What's key	18
Improve your chances.....	19
Resources matter.....	19
Why should anybody pay us to do the work we propose?	19
WRITING GRANT PROPOSALS.....	20
Chapter 5.....	20
On writing clearly.....	20
The third deadly sin: platitudinous ponderosity	20
Make no mistake: We work on it.....	22
THE FORM AND I : WRITING PROPOSALS FOR THE WAY THEY ARE READ	25
Chapter 6.....	25
Effort in the abstract	25
The biographical sketch.....	25
Budgets.....	26
Personnel.....	27
Equipment costs.....	27
Supplies.....	27
Operating costs.....	28
Travel.....	28
Consultant and subcontract costs.....	28
Budget justification	29
Indirect costs.....	29

Direct costs: know 'em when you see 'em.....	29
Profit means growth	31
Many kinds of profit	31
Resilience for hard times	31
AFTER THE FALL : REWRITING AND RESUBMITTING OUR PROPOSALS	33
Chapter 7	33
It's not easy.....	33
It's hard to feel real good about that.....	33
Laying siege.....	33
What work can we do on rejected proposals? Plenty.	34
First things first	34
Collect information	34
Colleagues can be a major resource in competitive grant writing.	34
SELECTED RESOURCES ON GRANT WRITING	36
BIBLIOGRAPHY	36
GENERAL WRITING RESOURCES.....	36
GRANT PROPOSAL QUALITY CHECK.....	37
APPENDIX A	37
PRE-REVIEW WORKSHEET	39
APPENDIX B	39
WALKING THE WALK : ROUTING YOU PROPOSAL	40
APPENDIX C	40
APPENDIX D	43

PREFACE

This document "Writing from the Winner's Circle: A Guide to Preparing Competitive Grant Proposals" by Dr. David Stanley, was published by Nebraska EPSCoR in 1996 to assist researchers in Nebraska as they develop grant proposals to support their research programs. That booklet was also made available to researchers in other EPSCoR states at our cost of publishing and mailing. Some copies are still available under this arrangement—call the Nebraska EPSCoR office if you are interested in the hard copy version—, but because of the considerable interest in the booklet and with the encouragement of the EPSCoR staff at the National Science Foundation, Nebraska EPSCoR is making the entire booklet available on the world wide web. Neither the author nor Nebraska EPSCoR wishes to make any money from the publication and hopes that its information will provide assistance to anyone developing a research grant proposal, but republication or decimation of this booklet for a fee is prohibited.

The web version of this booklet has been designed and edited by Karla Roth, Administrative Assistant of Nebraska EPSCoR. Thanks to Karla for her continuing effort in maintaining our web documents. Thanks also to Dr. David Stanley for his permission to publish this booklet in this form. Please read the preface to his hard copy version (below) for background and acknowledgments on the "first edition."

Royce E. Ballinger, Ph.D.
Director, Nebraska EPSCoR
August, 1998
Lincoln, Nebraska

David W. Stanley

David Stanley is a Professor in the Department of Entomology at the University of Nebraska. He received his PhD (Entomology; Insect Biochemistry) from the University of California, Berkeley. After a three-year Post-doctoral fellowship at UC Berkeley, he moved to Stanford Research Institute, (SRI, International) in Menlo Park, California, where he held the position of Insect Physiologist and Senior Scientist. Dr. Stanley moved to the University of Nebraska in 1989, where he directs the Insect Biochemical Physiology Laboratory in the Department of Entomology. Dr. Stanley has enjoyed external funding from federal agencies, including the NIH and the USDA, and private foundations, including the Nebraska Foundation. He is also quite experienced in re-writing grant proposals. Dr. Stanley wrote this material on grant writing in 1994-95, while serving as an Administrative Intern in the Agricultural Research Division at UNL.

PREFACE TO FIRST EDITION

This booklet is about writing and submitting competitive grant proposals. It is addressed to colleagues who feel they may benefit from a quick look at the granting process. Royce Ballinger, Director of the Nebraska Experimental Program to Stimulate Competitive Research, usually known as EPSCoR programs, suggested this edition.

EPSCoR was designed and implemented to address the uneven distribution of federal research dollars among colleges and universities in the United States. The federal government is a powerful supporter of science and engineering research at our nation's colleges, universities and think tanks. In 1993, for example, federal funding amounted to about \$11 billion to American colleges and universities. However, the uneven distribution of these dollars has been a real concern to university leaders and to our federal Congress for many years.

Perhaps for historical reasons, or else just good luck for some people, most federal science and engineering research money has been invested in institutions in California, Massachusetts, Maryland and the District of Columbia; Nebraska and many other states have simply not received their share of this money. A basic premise of the EPSCoR program is faculty in the shortchanged states are quite capable of doing top-drawer research. Given a little shot in the arm, there would be no telling what we might be able to accomplish.

Most federal research dollars are granted on the basis of competitive proposals, and EPSCoR is intended to stimulate competitive research. EPSCoR funds are meant to help states improve their research infrastructures, and increase research capacities. Help is the operative word in this remark, because eligibility for EPSCoR programs depend in part upon a state's willingness to match federal EPSCoR funds. The partnered investments in research indicate state commitment to research; they are supposed to enhance research programs such that universities in EPSCoR states are enabled to better compete for federal research dollars.

Efforts to increase the research base in Nebraska have yielded substantial gains. For a specific example, the research base at UNL has steadily increased since 1991. Who knows how long this trend will continue? Nonetheless, to move up to the national average, on a per capita basis, universities in Nebraska must continue to increase competitiveness for federal funding.

In our discussions of stimulated competitive research, it is worth considering what competitiveness among research universities means in just a bit more detail. By and large, university faculty compete for recognition and prestige, rather than for money. The distinction is not trivial. Universities compete in an intellectual arena for intellectual rewards, such as prestige, while competition for research funds is about obtaining means to reach a specified goal. In this sense, the main aim of EPSCoR programs is to enhance the abilities of universities in EPSCoR states to compete against rival universities for research funding.

The enhancement will come through improved research infrastructures.

This booklet is meant to complement the gains attainable through improved research capabilities. Here, the aim is to help enhance Nebraska competitiveness for research funding by providing an informal discussion on developing competitive grant proposals. Perhaps the key point to offer is this: as a general principle, we can increase our competitive postures by understanding the relationship between granting agencies and individuals who are funded by granting agencies. We need to get used to the idea that most granting agencies do not much care about us.

I started this project while serving as an administrative intern in the Agricultural Research Division of the Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln, during 1994-95. Darrell Nelson, dean and director of the ARD, supported the first edition of this booklet, entitled "Playing to Win." Thanks to Darrell for a very good experience in the ARD.

A special thanks to Judy Nelson, Communications and Information Technology, for editing and supervising production of this edition. It's a great pleasure to work with Judy. Kristi Snell combined hand drawings with computer art to produce the illustrations for each chapter.

~ David W. Stanley

THE TWO SIDES OF PLANNING

Chapter 1

We often hear there are two types of people in this world; I believe there are two types of grant proposals, as well. We have grant proposals, and we have competitive grant proposals. Externally, they appear the same. Both request resources to help accomplish a piece of work. Both ask for about the same level of financial support. Both can be a great deal of work.

They differ in one important aspect that becomes clear some time after they are evaluated: competitive grant proposals get funded or fall very close to funding cut-off lines.

This handbook is about developing and submitting competitive grant proposals, which means it is about fairly sophisticated planning and about understanding the relationship between granting agencies and those who seek grants.

The information in this handbook is designed to assist faculty members who are early in their careers or who have little experience in competing for extramural funding. Perhaps it will serve as a refresher for more experienced grant writers, as well.

The handbook has three major sections and seven chapters. The first section discusses the importance of planning in producing competitive grant proposals. The second conveys some basic principles that apply to grant writing. The third section addresses the administrative procedures faculty members are expected to follow in developing and submitting grant proposals.

For a specific example, I talk about the procedures that apply to the Institute of Agriculture and Natural Resources at the University of Nebraska-Lincoln. Of course, universities and colleges within universities have their own procedures, and it is one of our jobs to follow the systems within our own units.

There are two aspects of planning for competitive grant proposals. First, recognize that the goal of competitive grant proposals is to persuade granting agencies that they should invest their resources in members of our University, rather than members of other, less gifted, organizations. How we conceptualize our projects, how we formulate persuasive and elegant arguments, and how well we understand the relationship between granting agencies and grant proposers all come into play. We must plan to write elegant and competitive grant proposals.

Second, faculty members in any institution of higher education produce grant proposals in the same sense that some assembly line employees produce widgets. Producing affordable, family widgets requires sophisticated planning.

Manufacturing firms employ a class of professionals known as planners, and it is the planners' job to see that all of the hundreds of items needed to make something are in the right place at the right time.

One of the consequences of inadequate planning in manufacturing plants is that assembly lines are slowed or stopped. Products do not get produced, and some of the planners find themselves checking the want ads for possibilities in another line of work. The same idea applies in the grant proposal business.

Inadequate planning results in grant proposals that do not get produced, or that get produced in such a way that they emerge as grant proposals, rather than competitive grant proposals. We can work to minimize these sorts of production problems by thinking of a grant proposal as nothing more than a product. We plan to produce a high quality product in a timely way.

SELECTING AND PRIORITIZING PROJECTS

Chapter 2

The first step in preparing a grant proposal is deciding what work is to be done. Most of us have a pretty good idea of what work is required to help advance our fields.

Teachers and extension educators may be quite interested in applying modern electronic technologies, such as computers and satellite communications, to specific problems in education. Most research professionals have little trouble identifying their research frontiers.

We are usually more concerned with selecting and prioritizing from a large number of quite obvious educational and research goals than we are with generating ideas for work. Nonetheless, there are times we could find ourselves looking for ideas for competitive grant proposals.

We may be redirecting our research effort to a new area. We might be trying to form an interdisciplinary research project.

Every now and then our own well-spring of ideas might run dry.

Some books on grant writing suggest that at those times we turn to the tried and true technique of brainstorming. Convene a small panel of colleagues, students, and co-workers, lay out the problem to the group, and begin a process of writing down all the ideas that come to mind.

The key to successful brainstorming sessions is that we do not discuss or evaluate the ideas as they emerge. Just write them down. The beauty of a group process is that very often a sort of "collective genius" develops from the interactions of several different personalities. The success of a brainstorming session can be measured by the number of ways an idea is modified, reshaped or refined.

We want to take care to avoid inhibiting the free flow and expression of ideas. Some groups appoint a recorder to make sure everything gets written down, and they appoint a facilitator to help keep the process moving. Be sure to avoid judgmental comments that would stifle the process.

The goal of the brainstorming session is to create a list of ideas. When this is successful, we can move forward with the next step—selecting and prioritizing.

Selecting and prioritizing requires a bit of thought, because some projects are simply not fundable. Unfundable projects may have nothing to do with how interesting they are, or how capable the proposer.

Out-of-date research generally is not fundable. Outrageously expensive research may not be fundable. Trivial activities rarely attract funds.

If an agency already has granted funds for another individual or group to do the work in our proposal, it is unlikely that more money will be invested in that area. Work on a problem outside our region may not be funded.

For example, did you ever try to get a grant from the Nebraska Viticulture and Oenology Board or the Western Iowa Cotton Board (which could feature the catchy slogan: Eat More Cotton!)? There's a reason you can't.

Fundability relates to the needs of granting agencies. If our projects do not meet the needs of a granting agency, they will not be funded.

We will return to this theme from other perspectives because this is a fundamental aspect of planning competitive grant proposals.

We all need to select and prioritize our potential projects with a coldly analytical eye. There is nothing to be gained by planning, writing and submitting grant proposals that are unfundable because they do not address the needs of any granting agency.

PRIORITIZING PROJECTS: A PERSONAL GLIMPSE

I maintained a notebook of research goals for many years. It was a small stenographer's notebook, and I often took it along to seminars and to paper sessions at scientific meetings. New ideas came to mind, and I recorded them in my book. Now and then, I transferred the ideas to a file in my computer, rearranging, reordering, rethinking them in the process.

I rejected many ideas, ones that seemed impractical or perhaps too challenging, along with other ideas that, upon reflection, simply did not make sense. This was an ongoing process, and at any given time I had a menu of research projects reflecting my contemporary interests.

Some of the items on my project menu developed into experiments. The outcomes of these preliminary experiments often made it quite clear that other ideas should be erased from the menu. A few ideas came to fruition.

Some, in a small way, allowed a publication or two; others led to grant proposals. One of my ideas from the list is the basis for a patent, as well as for funding from federal and state sources.

Again, for most of us, deciding what work is to be done is more a matter of selecting and prioritizing our potential projects. One way to do that is to keep a small menu of projects. The menu should have a great deal of elasticity. But don't lose sight of the main idea: There are plenty of other ways to think about research goals.

FROM IDEA TO PRODUCT: PRODUCING A COMPETITIVE GRANT PROPOSAL

Chapter 3

The first aspect of writing competitive grant proposals is planning to produce a product. When this phase of grant writing goes well, proposals are excellent products that get finished on time, with a certain aplomb. Let us work from the idea that the purpose of grant proposals is to encourage somebody to give us money, not to upset the basic structure of our working and private lives. Most granting agencies evaluate grant proposals and disperse funds in cycles. Depending upon the agency, there may be from one to half a dozen grant cycles per year. The granting agencies usually establish deadlines, beyond which proposals will not be accepted for a particular cycle.

It is up to us to be sure that our grant proposals are planned, written and submitted in accordance with the deadlines. For agencies with one grant cycle per year, a small error—even a very small error—can set a potentially competitive proposal back for a year.

We can use another layer of planning to assure that our proposals are submitted on time. This brings us back to the idea of planning to produce a product: the proposal. Let's consider a series of rather blunt questions, starting with the most important one:

Who is going to write the grant proposal?

In the most straightforward situation, you are responsible for the entire grant proposal.

You decide which of your prioritized projects will be the subject of a proposal. You plan the experiments, design the budget, work up the standard forms and write the proposal's main body. You do all the typing, word processing, budget calculations and final production of the proposal.

All you need to do is estimate how many hours you will need to perform your best work, multiply that by a large number to arrive at a more realistic estimate of the time required, and then set up your overall working schedule to allow time to produce the finished product.

I estimate the amount of time it will take me to do something, multiply that by two, and adjust it up to the next time level. For example: I expect something will take two hours; I multiply by two. That's four. The next time level up from hours is days, so I allow four days.

Scenarios often are not so straight forward. There is increasing emphasis on collaborative work. The collaborations may be interdisciplinary and multidisciplinary. Many systems are complex, and substantial progress often requires the knowledge and skills of individuals from several disciplines.

Our University is home to an impressive number of interdisciplinary teams. Understanding that collaborative teams are in ascendance, we need to recognize that the benefits of teamwork contain their own complexities and opportunities. One complexity is gathering input from all concerned to put together the most effective grant proposal. One opportunity is that we find ourselves doing more sophisticated planning.

There are a number of ways to put collaborative grant proposals together. You might write the entire document yourself, then pass the finished product around for your team members' input. Or, your working group may assign specific parts of the proposal to each team member, and then have one person put the parts together, or work together to assemble the overall proposal. There are still other ways for groups to write a grant proposal.

The key point is this: The goal is to submit a competitive grant proposal, not just submit a grant proposal. This means that each team member must contribute the assigned piece of work on time. In these more complex situations, "on time" would be well ahead of the submission date to allow plenty of time to assemble the individual pieces into an integrated whole.

Who is going to type the standard forms?

Many grant agencies provide sets of standard forms that make up a substantial portion of grant proposals. These include, but are not limited to, cover pages, summary pages, budget forms, pages to describe your working spaces and other resources, forms to list grant support you may have, and a page for an abbreviated biography.

Smaller agencies don't have forms and expect us to provide this sort of information in a readable style. I think of these things as the "boiler plate." In my experience, a highly skilled (read gifted) secretary can knock these things out in just a few days.

We must plan time to get the correct information onto the boiler plate, and we must work with the individual who is going to type the final forms to assure there is enough time to get the work done. This is especially important at times when several individuals in the same unit are planning to produce separate proposals at the same time. Even gifted secretaries cannot do everything at once.

Who is going to do the budget?

For those of us who enjoy clarifications of the obvious, we write grant proposals to persuade people to give us money to do something. We use the budget section of grant proposals to tell the granting agency how much money we want, and what the money will purchase. We will revisit budgeting later in the section on resources. For now, however, there are some important points to consider in this section on planning to write a proposal.

First, the budget has to be designed. You must decide on funds for personnel, supplies, equipment, operating costs, publication costs and other resources needed to complete the project. If you are planning a multi-year project, you will have to extend your budget over the project's life.

Second, it is important to make sure the budget is correct. For research grants, the budget should be audited a few days before the grant is completed. Extension and teaching grant proposals also should be preaudited a few days before the proposal deadline.

Understand that this preaudit step is not just another administrative hoop to jump through. At UNL, all grant proposals are audited by our Research Grants and Contracts Office (RGCO) before they are signed by the appropriate University official.

There are a good number of potential problems with budgets, and many of these can be settled with ease by having the budgets preaudited.

One of the most painful problems occurs when there is an error in something that affects every bit of the budget, such as a small error in indirect cost calculation.

Some people develop their budget pages on a spreadsheet, which can help reduce effort and potential errors. My grant proposals are straightforward, and I can do them all in my head or on a note pad. So I don't bother with spreadsheets.

If you plan to develop substantial proposals, spreadsheets can really help.

Third, as with every aspect of a grant proposal, you need to make sure the individuals who are going to preaudit and type the final budget are available to help you when you need the help.

Who is going to produce the final form of the proposal?

I put this section here to reemphasize the importance of planning proposal production.

Just imagine for a moment: the department support staff falls into an unanticipated personnel shortage. (Okay. Maybe it wasn't so unanticipated for those paying attention!)

One individual is off to hike the western Alps; another is attempting to build their own boat; the accounting clerk has just been buried in an impossibly complex project, responding to an academic emergency. And you need to get your entire proposal produced within the next five days.

Then you recall how slow things seemed in the office during the previous two weeks, before the hiker left for vacation. Ha!

You grumble, it would have been easy to knock out a few pages of typing last week. But that doesn't help now, does it?

During this phase of planning to produce competitive grant proposals we really do assume the planner's role. We plan and prioritize the work we intend to do; we plan to produce the product; we plan to ensure that all the support that we need is available to help us when we need the help. We plan to take a little break just after the proposal is submitted.

A Note on Planners

You probably have noticed that producing various sorts of "planners" has emerged as something of an industry.

There are Day Planners, Night Planners, Load Planners, Day Timers, Franklin Planners, personal information managers, and software planners, among others. I don't keep track of them.

All are based on the idea that we can improve our effective use of time by planning ways to control the use of our time, not let time control us.

What makes them different from an ordinary calendar is that they can help us proactively plan our activities, rather than respond to events as they arise. Used correctly, planners can be helpful tools for some people.

A friend of mine invented her own planner many years ago, long before planners were sold on the open market. It was a loose-leaf binder divided into sections relevant for an active, effective homemaker. There was a calendar section, a goal section, a household expense section and so forth.

She was in the habit of setting aside a few minutes before dinner each evening to go through her planner, see what was accomplished, and make notes about the next day and the rest of the week. She had a developed contrivance that helped her keep track of things.

We can develop a similar planner to help us plan to produce competitive grant proposals. The commercial firms that produce planners usually have a set of forms to help people with project planning. One project planner has a series of pages.

There is a "Project Planning" page with spaces to write the project name, starting date and target completion date. There also are spaces for things that do not seem to relate to writing a large grant proposal.

The spaces to list resources may be helpful. We can write down the names and telephone numbers of people who will act as our resources, such as personnel who can check our budgets, and individuals who actually will help produce the document. Any notebook can help formalize and keep track of progress on a large grant proposal as a separate project.

Planners also contain "Project Tasks" pages. These can be helpful because they help us disassemble a large grant proposal into component tasks, each of which can be tracked separately. We might list the proposal approval and routing form, the boiler plate, the budget, the budget preaudit, the background and significance, the preliminary data, the experimental section, the literature references, getting letters of collaboration, the summary page and arranging for pre-submission reviews as separate jobs that make up an entire proposal. We could establish starting dates and target completion dates for each job, from the smallest to the largest.

I plan things along these lines. I use my computer to develop a sort of planning form, and to keep track of things as I go along. I also keep a folder for each job involved in the proposal. There is one for the budget, another for the biography section, and so on. As things come together I assemble the components, using a bigger folder for the whole thing. I use a similar system for my research manuscripts, but it doesn't take as many folders.

AGENCY FUNDING ARE DETERMINED BY VALUES AND NEEDS: THEIRS, NOT OURS

Chapter 4

Funding agencies are charged with dispensing funds to people and organizations; faculty are charged with writing grant proposals to obtain funds to do work. To look at granting from a slightly different vantage: granting agencies need to award grants. Just imagine poor James Fungistis, former chair of the Division of Correct Spelling in the Department of English and Abused Languages at a small college, best left unnamed. He is now chair of the subcommittee of grant awards for the Benevolent Vigilance Committee of The Middle English Society. James reports to a committee chaired by Lilliforce Brook. Mr. Brook, who is 6 feet 8 inches tall and weighs in at 280 kg, has bad breath, chipped teeth, distasteful tattoos, a low, gruff voice and wears a permanent frown. The surprise is that Mr. Brook commands any human language and dresses himself.

When Lilliforce begins to resemble a volcano, spewing demands to know how it happened that, for the second year in a row, James couldn't find anybody to take the Committee's grant funds, James figures he has a problem. Maybe a couple of problems.

The first deadly sin: mismatched values

The root problem, of course, is a values issue. People are not interested in resurrecting Middle English. Philosophically, there is an imbalance between the values and needs of the Vigilance Committee and the values and needs of individuals who seek grant funds. A pile of grant money lies fallow.

We need to recognize the special relationship between granting agencies and successful grant proposers. The values and needs of granting agencies come into close alignment with the values and needs of grant awardees, in that the agencies need to award money to people and organizations who can meet the value and needs of the granting agencies.

Let us dwell on values for a few minutes, because we can turn our appreciation of agency values to our advantage.

Understand that granting agencies do not care about faculty, nor about our research, teaching and extension activities. Even while they are awarding us big bucks, these same agencies do not care about faculty, nor about our research, teaching and extension activities. What they do care about is meeting their own needs in a way consistent with their own values. Consistency with an organization's values can be quite important.

Some examples

As a slightly off-the-subject example, I once was asked to apply for a position at Brigham Young University. It was attractive position, and I was interested. A bit later I received a lengthy letter outlining some of the institutional values faculty were expected to observe.

As a scientist who lived just outside of Napa Valley, California's wine country, I saw that some of our values were not shared. By bringing me onto the faculty, Brigham Young would not have been able to meet its needs in a way consistent with their values. It was appropriate to break off negotiations because our values were not compatible.

Here's another example.

During my graduate student days at UC Berkeley, one of my housemates, Cathy, was offered an attractive postdoctoral position. She had a problem, however, because the source of her postdoctoral support was a grant from the U.S. Army. The Army was interested in how a poison gas influenced certain enzymes in the human central nervous system. Cathy's problem related to her values, which were incompatible with research on chemical weapons.

These are clear examples of the influence of values on the relationship between granting organizations and individuals. There are subtler ones.

Some agencies hold the value that postdoctoral support should be reserved for American citizens. Some hold part of their total expendable funds for certain categories of individuals, such as women and members of under-represented groups. Some agencies set aside funds for younger scientists, or scientists who are still within a few years of having completed their Ph.D.

What may appear to be nothing more than a list of the interests and policies of any given granting agency is actually a synopsis of the agency's values. By thoughtfully considering our own values, and the values of the agencies we are interested in approaching with a grant proposal, we make two gains.

The competitive edge

First, we avoid writing proposals that will not come to fruition. Second, we hone our competitive edge by including appropriate statements that show how our values match the values of the agency.

Here is a specific example. It is a policy (read value) of the National Institutes of Health that universities should be delighted to make a considerable financial and human commitment to the sorts of research NIH likes to fund. We can include appropriate statements on this point in our proposals to NIH. One of the following would do nicely:

"The University of Nebraska-Lincoln is highly committed to this research program, as shown by the recent purchase of new phosphor imaging equipment."

"UNL's commitment to this work is shown by two UNL-supported GRA's who will work on this project."

"UNL will directly contribute to the success of this project by funding a technician who will devote full time to this project."

We can put specific language into our grant proposals with the overt goal of showing how our research programs fit into the value systems of granting agencies.

To summarize:

1. Values held by a granting agency influence the selection of grant proposals that will be funded.
2. Our values can influence what funding we are willing to accept.
3. Thoughtful attention to values can be a competitive tool because we can indicate how our values and the agency's values are compatible. Ask yourself:
 - A. What values does this agency hold?
 - B. How does this proposal support those values?

The second deadly sin: mismatched needs

Agencies award grants to individuals and organizations who will carry out work that meets the needs of the agency. Here, it is important to focus on the idea of needs. We need to match our needs with a granting agency's needs for much the same reason we carefully match socks when we pull them from the dryer—appearing in public with a mismatched pair can be downright embarrassing, and long remembered.

In selecting from a number of proposals, agencies tend to view with suspicion words such as interesting, thought-provoking, stimulating, exciting, spellbinding, tingling, electrifying, novel, important, significant and ground-breaking. These modifiers may accurately represent our projects, but the agencies do not care.

From the perspective of an agency, the only real question is: Does the project address our needs?

It does not matter that we believe our project is important, novel, and thought-provoking. What we believe is not the point to a granting agency. The agency does not care how much we enjoy our work.

Matchmaking: designing our proposals

While it is not generally true, faculty in some institutions can eventually lose their positions because they are not successful in attracting federal research funds. It happened to a friend of mine. The situation can become desperate, because we need to have a grant funded, or we could wind up teaching Algebra I in remedial college programs. Or we will lose a position or two. Or we will not be able to accept a promising graduate student. Or we will have to sell gun-cleaning kits all summer.

It does not speak badly of granting agencies to emphasize that our needs do not figure prominently in their granting decisions. It is a fact of virtually all granting arenas: granting agencies award funds to achieve the goals of the granting agencies in a way consistent with their values. Recognizing this point can help us design grant proposals.

It does not do to address the intellectual curiosity of grant reviewers: they do not have time or energy to be curious and they do not care about our interests.

Meet their needs

It does not do to describe what we need; the proposal reviewers do not have the time to care what other people and organizations need. Reviewers are charged with selecting proposals that meet the agency's needs in a manner consistent with the agency's values.

There is an inexorable logic to this: The only way we are going to get our proposals close to or over the funding lines is to ensure that the work we propose meets the needs of an agency in a way consistent with the agency's values. This puts the responsibility on us to look carefully at the work we want to do and to look carefully at the agencies we want to approach with proposals.

Match their needs

If we know what we really want to do, and we know the needs of one or more agencies, we can work to match what we want to do with an agency's needs.

There are a couple ways to work to achieve the match in needs and values that result in successful grant proposals. One is to consider a number of granting agencies, determine what they need, then select the agencies whose needs match our interests.

The other is to develop our proposals so that it becomes plain that what we wanted to do all along fits perfectly with an agency's needs. Very often the first part leads into the second.

The first path

Taking the first path, we scan grant proposal guidelines from all appropriate agencies, National Science Foundation, USDA, National Institutes of Health, Department of Energy, The National Cancer Institute, Environmental Protection Agency, all of the military research programs, the Education Department, the National Institute of Mental Health, the local Research Council, the Center for Biotechnology, and state and regional commodity boards, to name a few. Materials of this sort are available in the library or most sponsored programs offices.

Eliminate some agencies

It doesn't take long to eliminate certain agencies because there is no possibility of matching our interests and their needs. For example, the Office of Naval Research does not invest a great deal of money in agricultural extension activities. On the other hand, some extension programming may well suit the needs of agencies interested in adult education.

In this process of considering the guidelines of granting agencies, it may take a little more thought and time to eliminate some agencies that may or may not have needs in our interest areas. If often have looked at proposal notices, at proposal requests and at journal advertisements and wondered, "Would my interests address their needs?" Here is where a letter of inquiry, describing our interest, can help. The response helps us decide whether and if we should add the agency to our list of possibilities, or eliminate it without further work.

The second path

With luck, there will be one or more granting organizations whose needs would potentially match our lines of work. Now we take the second path toward creating a good match between the agencies and ourselves.

The overall idea is to first determine the needs of the organization, then to develop our proposals in such a way that it is plain that our interests match their needs. Historically, this was not always as important to writing competitive grant proposals as it is in the current economic and political environments.

In the bad old days, when granting agencies had buckets of sputnik-fearing money to dole out, and there were fewer faculty members in search of grant funds, the needs of agencies often were interpreted in more flexible language.

In my post-doctoral days, I was funded by the National Institute of Mental Health to work on biochemical aspects of the reproductive behavior in a cricket. By the mid-1980s, the Institutes were looking at their own missions very closely, and the needs of the Institutes were expressed in tightly defined terms. In the contemporary funding climate, work on comparative behavior would not easily fit into the narrow mission statement of the National Institute of Mental Health.

Look more closely

Let us look at the needs of granting agencies more closely. We all know that most granting agencies receive many more grant proposals than they can ever hope to fund. Individuals or panels who review grant proposals find themselves asking, "Which of these five impressive proposals BEST addresses our needs?"

Awarding funds for work is as much a process of elimination as one of selection. Simply stating that our work will help meet an agency's needs may not be sufficiently convincing. If the proposal is not convincing on this point, it is relatively easy to dismiss it. We do not want our proposals to be easily dismissed.

What do they need?

The aim here is to plan what we need to do to make our proposal successful by asking ourselves, "What do these people need?"

Let us consider some of the smaller grants available through various channels in UNL. One Monday afternoon you find yourself in a particularly creative mood, and reaching —without conscience awareness —for your project planning notebook.

Now, you think, this project down here, near the bottom, could be really interesting, if couched in the right language. The only real stumbling block is that you would need a bit of preliminary data to convert this idea into a competitive proposal, and you need to perform Western blots to get the preliminary data. You already have a power supply that would work, and all you really need to get some pretty attractive preliminary data is a blotting apparatus.

About \$1,500, plus \$500 for chemicals, and you could be rolling.

At this point, recognize that we have identified your need.

Seed money

This need is a spot of seed money. Seed money is usually meant to help get some preliminary data to support a larger, external grant proposal.

The UNL Research Council provides small grants to faculty who need a bit of seed money. We might fire off a proposal that says something like: "I need about \$2,000 to purchase a piece of biochemical gear (we would, of course, be specific) to help me get some preliminary data. The preliminary data will help me with a grant proposal." This may be followed by several detailed paragraphs on the theory and operation of the equipment, and on how the data from the equipment is interpreted.

Now. Let's think about the Research Council's needs.

First of all, the Research Council is comprised of relatively few scientists, and even fewer scientists who relate to biochemistry. Second, the Council does not need to award seed money.

The Council's goal is to encourage the development of external, competitive grant proposals. The Council awards seed money to attain its goal of encouraging research and other creative activities.

A proposal for seed money from the Research Council becomes more convincing when it contains a title for the larger proposal, and details precisely where the proposal will be submitted, the amount of money the proposal will request, and some information on how the equipment requested in the seed money proposal will make the larger proposal more competitive.

That same need for details applies to a number of small grant opportunities in our University. Granting elements in the University do not need to award seed money—they need to encourage competitive proposals aimed at national funding agencies. If we want to speak to the needs of University small grant programs, we should address, in convincing detail, how the small grant will help us generate competitive external proposals.

Same theme applies

The theme of identifying the real needs of a potential granting agency applies to all organizations. As example, the commodity boards award an impressive amount of money to University faculty. These boards are composed of fairly sophisticated individuals blessed with a clear focus on the needs of the growers they represent. We need to be just as clear on the idea that the needs of growers have changed during the last generation.

Due largely to the success of land grant universities such as ourselves, research on productivity and agricultural efficiency is less important than research on marketing efficiency and value-added processing techniques. Accordingly, fewer commodity dollars are directed toward research on production, and more are aimed toward marketing and at research into value-added operations.

In the current climate, it doesn't help to propose research work that no longer fits into the needs of the commodity boards.

Federal granting agencies also have needs, although they usually are expressed in terms of funding policies. We can thoughtfully consider the needs of these federal agencies by asking a couple of difficult questions.

Why should anybody pay to have this work done?

This is just another way of wondering if the work we want to do meets the needs of those agencies to which we plan to send proposals. The only reason anybody should pay to have any work done is because that work meets their needs.

Very often the information we get from larger granting agencies, such as USDA, NIH, NSF, EPA and so on, is expressed in general language. It may be difficult to figure out exactly what the review panels

really are interested in funding this year. Yet, a little advance planning can help us learn quite a bit about the real needs and objectives of review panels.

We will return to this later. Before we do, let's get a bit more personal about proposal writing.

Why should anybody pay to have us do this work?

Think about the federal granting picture. More and more people are competing for fewer and fewer dollars. Yep. More pigs are squeezing up to a smaller trough.

From our point of view as faculty, increased pressure to get money is coupled with decreased money to get. There is vastly increased competition for less reward.

A couple of big points bear heavily on this issue.

First, some people are generating competitive grant proposals. We all know this is so because we all know somebody who has a nice pile of grant money. Certainly there is less money available to compete for, but that less money is still a bunch of money.

Second, even the most highly regarded research and teaching programs experience gaps in their funding streams. I believe we ought to be able to successfully compete for some of the available money some of the time.

If we can assume we have forcefully and elegantly articulated the need for the work we are interested in doing, we have gone a long way toward a competitive grant proposal. Our next step is to forcefully and elegantly articulate why we should be the individuals or organizations funded to do this important work.

Consider three major elements of competitive grant proposals:

We establish a match between what we are interested in doing and the needs and values of the granting organization.

We establish an assurance that we are the most appropriate individuals to do the work.

We provide assurance that we work in an institution that provides top-drawer facilities to conduct the work.

Establish credentials

There are three sections of proposals that let us clearly establish our credentials to do the work.

First, a major reason for the preliminary data sections of large grant proposals is that we establish we are able to conduct the work specified in our proposals. Up to some point, the more preliminary data we generate, the better.

What's key

The key idea is to ensure that we have some preliminary data on each of the major objectives in our proposals. If the universe is kind to us, we might even have enough data for a manuscript or two, which can be appended to our proposals.

Second, major grant proposals also have a biography section, which provides an opportunity to show our credentials. We describe our educational backgrounds, our work history and our publication records in the biography section.

A number of individuals have worried aloud to me that, as newly minted Ph.D.s, they have not had enough time to generate all the publications required to compete with more experienced individuals. That is not really a concern.

A first-year post-doctoral associate is not expected to have the same publication background as a fifth-year faculty member. What is expected is that we all have the experience and skills to carry out the work in our proposals and that we have the knowledge and energy to publish the results of our work.

For the third point, the structure of our appointments can help indicate we are eminently qualified to do the work. If a large share of our appointment is aimed at research, it is a clear sign that we have the background to compete for a major research appointment in a major research institution.

The same logic applies to teaching and extension appointments: by virtue of our appointments, we are competitive individuals. What is important is that we can clearly indicate that our appointments are structured in such a way that we have the time and institutional structure to do the work.

Improve your chances

We improve our competitive posture by paying careful attention to the section of grant proposals addressing our resources and environment. For example, the forms for NIH research grant proposals have spaces to check off to indicate that we have an office, a laboratory and a few computers. Near the bottom there is a space to list the major equipment in our laboratories, such as ultracentrifuges and so forth. Below that is a space for special facilities.

Recall that our goal is to indicate that we are well-prepared to conduct the work we are proposing. The fact that we sit in an office doesn't add much to the proposal. But what about our laboratories?

Rather than just check off that we run a laboratory, it helps to have a statement such as, "The laboratory is a 900 square foot room with three benches that easily can accommodate six working personnel."

If we work in a unit that commonly shares equipment, we can list all the major equipment we have permission to use. We do not have to limit ourselves to the specific items in our spaces.

We want to pay attention to the working environment in our University. If we are proposing to use the tools of biotechnology in our work, we might stress UNL's Center for Biotechnology, and the relevant core facilities available. If we are proposing to do chemical work on monitoring environmental pollutants, we might stress our well-known Center for Mass Spectrometry. If we are thinking of designing a new adult education program, we might include the Nebraska Center as one of our facilities.

Resources matter

The point is that NU is blessed with some of the most modern facilities available. As an academic entity, we have high-powered expertise available to us. These enhancements increase the likelihood that we can successfully conduct the work we propose. We want to draw the proposal review panel's attention to these resources.

Why should anybody pay us to do the work we propose?

Because we have proposed work that best addresses the needs of a grant agency, and because we have forcefully argued that we are well qualified to do the work in an institution that is committed to it.

Returning to planet Earth for a brief glimpse of reality, let us not lose sight of this point:

The intrinsic merits of the proposal and the background of the investigator are the main determinants of grant funding.

I emphasize our facilities because in times of intense competition, they can tip the balance in our favor.

WRITING GRANT PROPOSALS

Chapter 5

David Bauer is one of the more successful grant-writing gurus. He puts on workshops, sells his book entitled *The "HOW TO" Grants Manual*, and hands out a neat notebook to help his workshop attendees organize themselves into competitive grant writers. I like a good deal of his material because it offers a program that can be useful if suitably tailored to our purposes.

The problem I see with his material and many other similar resources, however, is that often they are too general. The good ideas don't seem to really apply to us, or they require a substantial bit of translation to be useful to us. They also give me the impression that our positions are split in unusual ways: something like 110 percent grant proposal development, 20 percent teaching, and 80 percent research.

I operate from the point of view that grant proposals can help us attain some of our personal and professional goals. The proposals are not, in and of themselves, our major goals.

(I mention personal and professional goals out of a background as a contributing editor in the *American Entomologist*. I write brief columns on careers in science. The idea is to recognize that we can set a personal goal to attain a particular professional success. But let us not further digress.)

We want to spend some time thinking about the details of writing our grant proposals. One thing I like about the David Bauer approach is that he starts by recognizing that developing a major competitive grant proposal can appear to be a overwhelming task. He describes a mouse trying to carry off a giant piece of cheese. The mouse, exhibiting an extraordinary wisdom for something that never defended a dissertation, divides the cheese into smaller parts, each of which can be carried away with aplomb.

The suggestion: Divide the large task of developing a competitive grant proposal into smaller, doable chores.

I have a related suggestion. We already have talked about planning with our support personnel to get help with the cover page, budget pages and so forth. This sort of planning can really help break the job down into approachable pieces. For example, we might do some high-powered thinking about the background and significance of our work while our support staff directly assists with grant production by processing some of the routine forms.

On writing clearly

We have devoted a considerable amount of time to the business of planning a grant proposal production system. The planning stages can be crucial to getting competitive grant proposals out the door, and it would be difficult to over-emphasize planning. Now let's turn the tables just a little bit.

Have you ever heard somebody say, "Well, I reckon I'll just sit down and produce a grant proposal"?

Not likely.

Most of us think in terms of what we actually do: We write grant proposals. By and large, most competitive grant proposals are well-written documents. It follows that we should spend a little time here talking about the business of writing.

The third deadly sin: platitudinous ponderosity

Most of us focus on our grant proposals, refereed manuscripts, extension bulletins, research reports and class notes with the intensity of a laser beam. We work on our work.

In doing so, sometimes we lose the perspective that everybody else also genuinely works on their work. We may lose sight of the fact that grant reviewers simply do not sit down with a cup of good coffee to enjoy an afternoon with our grant proposal.

In reality, a grant reviewer may have from one to two to something like 30 or 40 grant proposals to read. Reviewers usually are asked to write their reviews of proposals in the confines of a fairly narrow time window.

Serving as a grant reviewer is a service to the granting agency and to the community. Grant reviewers typically add this service to their schedules, without some compensating release from regular duties. Since many grant reviewers are busy people in the first place, we need to be completely aware of grant reviewers' work loads. We may be able to turn our knowledge to a competitive advantage by developing our writing styles to accommodate them. We do that by writing very clearly, and by making our points explicitly. We avoid murky thinking and murky writing, and we do not ask busy reviewers to spend time trying to figure out what we are trying to say.

We write exactly what we want the reviewer to get out of our proposals.

Here is an exaggerated example of the point we want to grasp. Please record the amount of time it takes to read and translate the sentence below into idiomatic English. Do the same thing with the next italicized sentence.

A detached fragment of the terrestrial lithosphere, whether of igneous, sedimentary, or metamorphic origin, and whether acquiring its approximation to sphericity through hydraulic action or other attrition, when continuously maintained in motion by reason of the instrumentality of gravitational forces constantly acting to lower its center of gravity, thus resulting in a rotational movement around its temporary axis and with its velocity accelerated by any increase in the angle of declivity, is, because of abrasive action produced by the incessant but irregular contact between its periphery and the contiguous terrain, effectively prevented from acculumating on its external surface any appreciable modicum of the cryptogamous vegetation normally progagated in umbrageous situations under the optimum conditions of undeviating atmospheric humidity, solar radiation, quiescence, and comparative sequestration from erosive agencies.

Time? _____ minutes

A rolling stone gathers no moss.

Time? _____ seconds.

Many faculty members enjoy a certain facility in the English language. We are often quite comfortable with words, and are able to produce interesting, even amusing, formulations. We easily draw upon literary devices, such as metaphor, allusion and simile, to express ourselves.

Without a little self-discipline, we let ourselves slip into phrasical bombast and asinine affectation. We trade a concatenated cogency for something like a jejune babblement. I am particularly given over to this sort of writing because it entertains me.

Most grant reviewers do not have time for that line of entertainment. It is our responsibility to generate simple, readable, declarative sentences. We should eschew obfuscation.

There are many, many resources on writing, and this handbook is not meant to be one of them. This section is only a reminder that competitive grant proposals are well-written documents. Some resources on writing are listed in the bibliography for individuals who want to have a look at one or two.

The one resource I keep right at my fingertips is my wrinkled, smeared, paperback copy of *The Elements of Style* by Strunk and White. I use it when editing, going through my drafts of papers, sometimes even when writing a letter or memo. It helps me because my memory seems wired to recall numbers and patterns, but not to recall simple rules about writing. As a result, I am constantly looking up 'that and which' (page 59) to remind myself about which of the two words to use when.

Returning to the point: Competitive grant proposals are well-written documents. We do not need to be particularly good writers to generate good writing, but we do need to be pretty good rewriters. Let's apply this thinking to the narrative section of the grant proposal.

My idea is just write it: bang, bang, bang, with no concern for anything except getting the background, the significance and the work we want to do down on paper. Spelling, grammar, clarity and logic all can flap in the breeze!

The beauty of computers and word processors is that everything is right there on a disk (or whatever you call it) and, once our narrative is written, we can work on it.

Make no mistake: We work on it.

There are a couple of ways to work on making our proposals quite clear. One way is to ask ourselves a few questions. After we have dealt with these questions, we also can arrange to have our proposals reviewed before we submit them.

Here are some of the questions we might ask:

Are the objectives stated in a few crystalline clear statements?

For example, do we want to:

Establish the correct laboratory conditions to assay the enzyme "Tenure Synthetase," then use these conditions to perform an initial characterization of the enzyme, then use optimal assay conditions to begin purification of the enzyme (using sequential steps of precipitation, various chromatography columns and electrophoretic technologies), which will be used to establish the significance of this enzyme in academic careers and grant getting,
or

b. characterize "Tenure synthetase" ?

Does the background and significance section develop a story that can be followed easily without a detailed personal knowledge of your field?

We can use this section of our proposals to introduce the general field of our research, establish the significance of the field and of our particular work in the field, and to place the work we want to do into context. In outline form, we write something like this:

Are the objectives stated in a few crystalline clear statements?

In general terms: Well, okay, here is a line of work that is interesting.

Still in general terms: The work is important because the health, happiness, personal satisfaction and spiritual wholeness of every man, woman and child on our planet, as well as all their pets and domestic food animals, depend upon it.

Shifting to specifics: The particular work that we want to do directly advances the mission of whoever happens to be reading this proposal because & emdash; here we strive to express how our work fits into their mission. I have a friend who goes so far as to work in the same language the granting agency uses to describe its mission. The point is to very explicitly show the match between our work and their mission.

Specific: Now let's move into a brief, clear, crystal clear, handbell clear, nothing-less-than-enlightening summary of the extant literature. We want to guide our gentle readers to a focused point, at which it

becomes clear, compellingly clear, that the next, and possibly only, worthwhile advance in the field will come from the work we have identified.

Does the preliminary data section make the points that the work can be done, and that we are well-qualified to do the work?

We use the preliminary data section to make two points. First, all the work in the proposal can be accomplished. This relates to our ability to do the work.

If our experiments require that we have the skilled hands that can insert microprobes into individual brain cells, then we need to present some preliminary data to show that we are competent to insert the microprobes and acquire data from the probes and analyze the data and make sense of the data. We use the preliminary data section to convince the reviewers that we are able to do the work, and that we have the wherewithal to do the work.

The second point we make in the preliminary data section is that the work has a sound theoretical basis. Imagine a grant proposal to study the flight behavior of lobsters. Our reviewer thinks, "Wow! this is a really neat series of elegantly designed experiments." Then someone across the table wonders aloud, "do lobsters fly?"

Sounds silly, but many grant proposals fail to fly because the proposer did not establish a sound basis for the study. If we are interested in characterizing a particular enzyme, it is most helpful to show the enzyme is present in our system. If we want to study the economics of growing kiwi fruit in Nebraska, we ought to show that kiwi grow here.

Preliminary data send two important messages: We are competent to do the work in the proposal, and the work has a sound theoretical basis.

Does the experimental design make sense?

We want to convey three points in this section of the proposal.

1. We make clear what experiments we plan to conduct.
2. We say why we plan to do these experiments.
3. We tell the reviewers what gains will emerge from these experiments.

As with all sections of our proposals, this needs to be startlingly clear.

Many proposals begin with a few small paragraphs on the general methodologies that will support all the work. Throughout the proposal we can refer to these methods as appropriate for individual experiments.

We try to express our experiments in straightforward, simple language so the information can be filed in the reader's mind in an easy way. Many proposals have one experiment for each major objective in the proposal, then develop sub-experiments that give the detailed work plans.

After listing the experiment, we can give a little background from the literature to show why the experiment is important. We want to create a sort of balance here: give enough information to make the point, without going into such detail that the reader becomes frustrated or that the point of the experiment gets lost in the fog.

Finally, we can write a short statement on gains: What will we gain from this experiment?

Is there a reasonable timetable to show when the work will be performed?

I was once, but only once, soundly criticized for not including a timetable in a grant proposal. Now I include a little chart to show, in rather general terms, when each piece of work will be conducted.

Timetables are not binding contracts. It is well recognized that some lines of work, especially in research, are difficult, and we cannot set precise schedules about a particular experiment. On the other hand, we can show that we have given some careful thought about what work we are doing, and about the rate of progress we anticipate.

The thrust of these comments is that we always can work on a draft of our grant proposals. It is usually pretty easy to make a story flow smoothly. We can simplify our descriptions of the methods we plan to use. By giving ourselves some extra time, we can rewrite and rewrite, making things clearer, smoothing the flow, each time improving our competitive posture.

After dealing with questions of this sort for awhile, we might move on to a pre-submission review.

The pre-submission review makes proposals more competitive

Many research institutes gain all their support from various granting agencies. I used to work in one. It is not surprising to learn these research organizations develop, at all levels, a culture of successful grant writing. There are several elements of the culture.

First, members of the professional staff are usually involved in work you might expect to be pretty fundable. Second, some of the support staff are fairly expert in producing grant proposals. They usually know all about the boiler plate, submission times, and things of that sort.

Research institutes usually insist on pre-submission reviews. Sometimes they go to the extent of employing individuals who do the reviewing. Sometimes these individuals are former editors or English teachers. The idea is they are not scientists, and certainly not schooled in the technical aspects of any one line of research.

Instead, they are outside, intelligent readers, crucial to the success of research institutes.

Pre-reviewing grant proposals in this way tells us where our proposals are weak. If our proposals are not clear to an outside, intelligent person, they almost certainly are not going to be clear to a grant review panel.

Let's put a positive spin on this: If the proposal is not clear to our outside reviewers, we can improve it before we submit it to the granting agency.

We can draw upon all sorts of people to help us. Colleagues from other institutes, people down the hall and friends in other fields all can serve as good outside readers.

We vastly improve our chances of success if our proposals are understandable.

THE FORM AND I : WRITING PROPOSALS FOR THE WAY THEY ARE READ

Chapter 6

Now is a good time to consider forms in a little more detail. Most of the federal granting agencies and some private grantors provide a booklet of forms to use in grant proposals, along with instructions on filling out the forms. Some university grant proposals do not usually have boiler plate forms. Getting the boiler plate done right is important because the granting agencies use the information on the forms to carry out various administrative responsibilities. The forms are pretty routine and easy to get done. They do take some time, but by breaking pieces out and getting some help from support staff, if it is available, we can complete one part of developing a competitive proposal without much fanfare.

Individuals in granting agencies do not just sit down and read a grant proposal from start to finish, just as we do not write grant proposals from start to finish, albeit for different reasons. If we know something about how grant proposals are read, we can plan our work for each element of the proposal.

Here, in general terms, are some things that can happen to our otherwise innocent proposal:

One agency staff member will use a copy of the proposal to enter some of the information from the cover page into a computer file. If the information is incorrect or incomplete, the proposal may be returned without review. Administrations help us on this point by reviewing our proposals for errors before they are submitted formally.

The summary, or abstract, page often is copied and made available to people (such as legislators and policymakers) who oversee the granting agency. If the abstract does not accurately reflect the needs and values of the agency, the proposal may not be funded because many people do not read the proposal. The only part they read is the abstract.

This is an important point, so let me emphasize that even within review panels most reviewers see only the summary, not the entire proposal. This is a crucial section of our proposals.

Effort in the abstract

We can turn that to our advantage by putting real effort into our abstracts. Remember—if the abstract does not accurately reflect the aims in the main body of the proposal, or fails to convey the need for the work, the proposal will be marked down. "Marked down" is an expression my dear old professor used in reference to unsatisfactory grades.

The budget is taken out for independent analysis by another part of the agency: If the budget does not make sense, the proposal may not be reviewed, or if it is reviewed, it could be marked down due to poor budget planing. Folks here at the University can help us be sure the budgets are correctly calculated, but we are responsible for making sure the budget is appropriate for the work we intend to do.

The biographical sketch

There are, of course, other elements of the boiler plate, including a biographical sketch. We want to include our education, and a list of our professional positions. Some people give up a little space to list their major awards. I usually omit my out-of-date glider pilot's certificate and undergraduate position as a tow truck driver for an auto repossession firm.

If we are discussing a proposal for NIH, we can list as many of our publications as will fit on the remaining space plus one page. If it is NSF, we can list five publications that relate directly to the work on the proposal, and five other supporting publications.

We should give this page some thought, because we want to convey our experience and capability to conduct the work we are proposing. We should avoid conveying any sense of puffing up our record.

The federal agencies also want to know about all of our other support. We should include any institutional support, all active grants and all pending grant proposals. We can use this element of proposals to convey a couple of things.

First, other support indicates that we have an active program capable of doing work. Second, any support that comes from Nebraska represents institutional investment in the project. We can state this directly.

For example, if we have a seed money grant from UNL, we can write something like, "This money indicates that UNL strongly supports this research."

We also are expected to list our pending grant proposals, and sometimes even the proposals we are planning for the near future. Consider this, too: We need to state what proportion of our time will go to each project, and we want to be sure that we have the proportions add up to no more than 100 percent of our time.

For illustration, imagine we have a split appointment with 75 percent research and 25 percent teaching. We list a project that provides some dollars and state that we devote 50 percent of our time to that project. Then we have a University of Nebraska Foundation grant that gets 20 percent of our effort. And we have a small interdisciplinary project with somebody in anthropology, to which we give 5 percent of our time. Now, we claim we are going to invest 50 percent effort on the current proposal, if it is selected for funding.

Somebody in the agency, who is supposed to pay attention to these things, is going to wonder how a faculty member can fulfill the responsibility of 125 percent research and 25 percent teaching.

We want to be sure our programs add up to something close to 100 percent of us. If the total goes over, then we can express how we would adjust our activities to fit everything into 100 percent of our time if the proposal is funded.

We have already discussed the "Resources and Environment" section of grant proposals. Again, we can use this section to convey how well equipped we are to do the work we propose.

We take the idea that a grant proposal is composed of various elements—a cover page, a summary, a budget and so forth. We want to recognize that each element often is studied as an independent element of the proposal.

Because agencies have the resources to study the separate elements of proposals, we must pay appropriate attention to each element. Because each element of the grant proposal is meant to serve separate functions, and is directed to a different audience, we need to be pretty particular about the standard forms.

The budget is a crucial standard form, so let's look at it in more detail.

Budgets

What is the right amount of money to request in our proposals? The amount of money required to accomplish the work we want to do.

The elements of a grant proposal budget usually include salaries for personnel, equipment, supplies, operating costs, travel, consultants and other costs.

I once made a mistake of trying to be very frugal in my budget request. The proposal was funded, but to my horror I had under budgeted the complete cost of a graduate research assistant. I paid dearly for that error.

Personnel

Personnel can include part of our salary as Principal Investigator, usually the equivalent of our summer salary. Other personnel costs include the salaries of postdoctoral associates and graduate student stipends. Salaries for faculty, post-doctoral associates and graduate students are easy to calculate.

Federal agencies stipulate that any faculty member's salary from their home institution and their grants cannot exceed 100 percent of their annual salary. We simply put in our actual salary for the work we intend to do.

We can learn the typical post-doctoral salaries in our specific fields from our unit heads and from our colleges. Graduate student stipends are set by each unit.

The budget forms have a column for fringe benefits, and we calculate our fringe benefits for faculty, post-doctoral associates and graduate students at a percent of salary (e.g. 23 percent at UNL). For graduate students the 23 percent goes toward tuition remission. Of course, each institution has its own policy on this, and we should check it before completing the budget.

We often include funds for casual labor, perhaps summer assistants for field work or a laboratory helper. These individuals are usually undergraduate students. One good way to determine the amount of money for this category is to simply multiply the number of hours of work by the hourly wage.

It's good to calculate a little buffer zone into this. We do not ask for fringe benefits for casual labor. We need to be aware that students are not entitled to unemployment compensation at the end of the project.

Non-student hourly individuals are eligible for unemployment pay. The unemployment pay will come from our projects, not the University resources. This is one of those minor points that we don't want to learn after somebody puts in for unemployment.

Equipment costs

Equipment is usually regarded as items that cost more than \$500 and are expected to last longer than the life of a typical grant period, but this varies by agency. NSF (CGPG 95-27) defined equipment as an item exceeding \$5,000 and one year of useful life. We can ask for whatever equipment we need to complete the work in our proposals. Be warned, however, that granting agencies expect major research universities, such as ours, to invest in research equipment. Our aim is to create a sort of balancing act.

We want to express that we are equipped to conduct the work in the proposal, or that we are almost equipped to do the work, but not quite completely. Agencies usually frown on grant proposals that include a huge equipment budget disproportionate to the amount and kind of work in the proposal.

My rule of thumb is ask for no more than one piece of equipment, although some people have been quite successful with larger requests.

Be specific in equipment requests. List the precise item, with manufacturer, model number and so forth. List the cost, and allow for all the minor extras you may have to purchase to actually get the equipment running. Also allow for installation, shipping, handling and inflation.

Supplies

The rule here is that we should request enough money to do the work we want to do. In practical terms, it means we need to know how much it costs to work in our own fields. We also need to be aware that granting agencies study this section of our grants very carefully.

We can make some pretty good estimates by looking at similar grant proposals from our colleagues. We also can do some calculations. If we buy a particular radioactive compound once a month, then we need 12 times that cost for a year's work.

This is an important section of the proposal, because proposals can be turned down if the costs are wildly out of line. If we underestimate our costs, it can be said that there is not enough resource to do the work; if we overestimate, it can be said we are padding our proposals, or that we do not really know how to budget our work.

Operating costs

We should include funds for the operating expenses of our programs. This can include a range of expenses, such as telephones, copying and equipment maintenance. Again, we want to be thoughtful about that, because many operating costs are not devoted exclusively to a specific grant project.

Agencies are unwilling to pay all the maintenance costs for an item of equipment devoted to three projects in addition to the work in the proposal. Similarly, we want to note that we do not use our telephones exclusively for communications within a specific project.

Again—it is appropriate to request funds to support all aspects of the work in our proposals.

Travel

It is appropriate to request funds to cover the costs of travel associated with the work in our proposals, and to present the results of our work at professional meetings. We should be fairly specific about the destinations and costs of our travel.

Foreign travel usually is considered separately from domestic travel, and should be appropriately justified. For example, some professional groups meet in an overseas venue once every three or four years. It is appropriate to request foreign travel to participate in these significant events.

Consultant and subcontract costs

The competitive posture of some grant proposals can be much improved by a variety of collaborative arrangements. An individual with a particular expertise that will directly enable the work you are doing may enter into a formal collaborative arrangement with you.

Sometimes we use the services of consultants—for example, a statistician who will help with experimental designs. Or, we might let a contract for a specific piece of work, possibly with a chemist who will synthesize a particular compound.

This section of grant proposals allows us to be creative because we do not necessarily have to be able to do every little thing in the proposal ourselves.

One of my colleagues has been working on biochemical and physiological aspects of disease transmission by ticks for the last two decades or so. As he was planning the competitive renewal of his NIH grant, he realized that the next logical step in his work would take him into my area of expertise.

After a few meetings and (painfully) long discussions, I helped write the proposal, and agreed to do some of the work as a subcontractor. The reviewers directly commented on the point that the appropriate expert was involved in the work, and the proposal was funded.

To be sure, that was not the sole reason the proposal was funded. As has been said throughout, all elements of competitive grant proposals need to be strong. But we can improve our proposals by developing various collaborative arrangements.

For the purposes of filling out the boiler plate, we need to provide all the particulars of the arrangement. This includes the names and affiliations of the collaborators, as well as a detailed description of the collaborative or contractual arrangement. What we want to convey is a very clear sense of exactly what the collaborators will contribute to the proposal.

As with all budgetary aspects of grant proposals, we need to spell out the precise costs of the arrangements.

Budget justification

Always write a page or two of justifications just following the budget, whether or not it's required. Make a subheading for each section and briefly justify each expense.

Under personnel, spell out what each individual, including the principal investigator, will contribute. Under travel, note that the principal investigator plans to attend one scientific meeting per year. Under supplies, note that the supply costs are in line with the sort of work in the proposal. If there are particularly expensive supplies, such as restriction enzymes, note that the supply costs reflect these expensive requirements.

We also can use this section to spell out how the University is contributing to the project. The salary of the principal investigator is an example of University contribution. Equipment purchased as part of our start-up budgets or on in-house grants also represents University commitment to the project.

Indirect costs

Indirect costs, sometimes called "overhead," are meant to reimburse a university for real costs for performing research and other sponsored activities. For research sponsored by federal agencies, all research institutions establish indirect costs' rates by periodic direct negotiation with a designated lead agency. For example, at UNL it is the U.S. Department of Health and Human Services.

Some agencies set their own indirect cost rates, and leave it up to research institutions to accept the preferred rate. The USDA allows 14 percent; some private research firms (Proctor and Gamble, for instance) allow 10 percent. The Nebraska commodity boards do not allow indirect cost recovery. The RGCO keeps us up-to-date on changing indirect rules.

Use the current value

Of course, indirect costs change, and it is our responsibility to use the current value.

Indirect costs' rates are renegotiated periodically. Check with RGCO personnel to verify the current indirect cost rate.

For perspective, some private research institutes charge considerably higher indirect cost rates. SRI International (in Menlo Park, CA) used to charge 116 percent of total costs to federal agencies and 300 percent to private firms.

OMB Circular A-21

Federal regulations entitled "Cost Principles for Educational Institutions," known to most of us as OMB Circular A-21, spell out what costs can be charged against federal funds, and they more or less clearly distinguish direct from indirect costs. We need to be aware of these regulations because they influence how we structure the budgets in our grant proposals. I don't like to dwell on what can happen when our budgets are not structured correctly.

Direct costs: know 'em when you see 'em

Direct costs can be specifically identified as a part of a project or activity with a high degree of accuracy. Usual examples of direct costs include salaries of professional and technical staff, research supplies, travel and specialized shop costs. Telephone toll charges may be direct costs, but the local monthly service charges are not direct costs.

We usually regard indirect costs as a direct percentage of the total costs. But what about administrative costs, such as secretarial assistance?

OMB Circular A-21 is pretty clear on this: Administrative salaries and clerical staff normally should be treated as indirect costs, right along with other indirect costs such as general operating expenses. For most of us, this means we are not supposed to add secretarial salaries into our budgets as a direct cost because secretarial salaries already are calculated into the indirect cost percentage as administrative costs.

Grants administration being what it is, OMB Circular A-21 allows direct administrative costs in some projects. These usually are large projects in which administrative or clerical activities are explicitly budgeted for specifically identified individuals. Projects that entail extensive data accumulation and entry and projects that require making detailed travel and meeting arrangements for large numbers of individuals are examples of situations in which direct administrative costs may be included in the budget.

The University Policies

Budgets for all supported projects (LWF, LWL, LWT and LWW funds), regardless of the source of funds, will observe the limitations of administrative costs according to OMB A-21. All sources of funds are included to ensure the policy is observed for federal funds passed through a state or local agency or through another university.

Each university has procedures and policies we must follow in budgets and administration of grants. For example, here is an abridged list of rules we must follow at UNL. Each researcher is responsible for knowing the rules at their institution.

1. Include administrative personnel as direct costs only if the costs can be justified on the merits of the proposed work. The justification will need to convince the cold-blooded reviewers and grant program staff members that the costs are justified. These people will not be inclined to allow administrative costs.
2. Publication, postage, telephone line service, office supplies and equipment maintenance costs are allowable only when they are explicitly approved by the funding agency.

I usually include publication costs, but none of the other costs, in my grant proposal budgets. Maybe that's why those other costs never get funded.

3. Re budgeting funds into these administrative categories will require prior approval by the granting agency, except when such re budgeting is allowed under the Institution Prior Approval System (IPAS).
4. We need prior approval from the RGCO—Finance to re budget funds under IPAS policies. The request for re budgeting should be attended by elegantly argued justifications.

Of course, the OMB Circular A-21 has certain broader implications for budgeting in existing grant-supported projects. Each unit administrator should have a complete copy of the University policy on Circular A-21.

Making profits for your program: projects that we cannot afford to do

On the dark side of the grant proposal moon lies an idea that we need to consider: Some grant programs offer funds we cannot afford to accept. This becomes clearer when we consider our needs vis á vis the needs of a granting agency.

Returning to our chant, granting agencies need to award funds to support work that meets the agency's needs, and we need grant support to help us do our work.

It sounds rather like a zero sum arrangement: We write a proposal, get some support, spend some money, do some work; if we are fortunate, we are required to write only five or six thousand reports on what we did with the money. Yet another aspect of our careers lurks behind this scenario: To develop

the most expressive academic careers in research or teaching, we need to develop programs. Programs are different from accomplishing specific projects in the sense that projects are elements of programs.

Individuals with research appointments or teaching/research appointments can relate to this idea. Acquiring a particular bit of equipment that will be devoted to a course we teach can be one element of our program, and conducting a research project can be another. Our research also can be programmatic.

A research program on the reproductive endocrinology of emus may have several elements. A graduate student might spend a fair amount of time observing the mating behavior of adult emus, while another graduate student may be working on the circulating levels of certain hormones in emus in their various stages of reproduction. The personalities of the students may figure pretty big here because emus are not known to volunteer urine samples or sit quietly while a youthful phlebotomist draws a few drops of blood.

The point is that a research program is not just a collection of tasks. It is an integrated, thematic entity that often involves a number of people.

Profit means growth

A grant that supports a single activity without providing a small margin of "profit" to support long-term program growth is a grant we cannot afford to accept. How does the concept of profit fit into academic activities?

As used here, profit means lasting growth for our programs.

We might be awarded a small grant that allows us to purchase a microcentrifuge to help with a project. The usual scenario is played out: Equipment is purchased, the work is done, 5,000 reports and one publication are written, and the project is completed.

The profit is that the centrifuge remains as part of our program. Our program has grown slightly because a piece of equipment is available for routine use in a number of future projects. Hourly labor can contribute similarly to our programs.

Many kinds of profit

There are many kinds of profit in academic work. A graduate student may be supported through an entire degree program, and we can say that not only was the work done, but an educational program was completed. A research grant may support a research project, and allow purchase of equipment that also gets used in teaching.

Profits are usually small, only rarely large. Nevertheless, the slow accumulation of these academic profits can facilitate remarkable program growth.

We want to be careful in our thinking about program growth, because growth should be defined in terms of the sort of program we are considering.

Some programs grow by attracting a good-sized group of individuals, others by developing an unseen, but crucial, infrastructure. There are substantial advantages to growing our programs. It can help us get more work done in the same unit time and with the same personal effort. In some situations we get to be involved in more activities, or interact with more people.

Resilience for hard times

A less obvious advantage is that well-grown programs are more resilient in hard times. They're able to take a hit now and then, and continue to move forward. It is this resiliency that makes program growth so important.

A lengthy series of profitless activities may allow us to conduct some work, and to produce documented outcomes of our work, but profitless projects will not sustain our programs in the long run. It is our responsibility to ensure that most of our funded projects allow a modest profit for long-term program growth.

AFTER THE FALL : REWRITING AND RESUBMITTING OUR PROPOSALS

Chapter 7

Let's spend just a little bit of time on rewriting and resubmitting our grant proposals, because there are some things we can do to increase our competitive posture at this stage in grant proposal writing.

We are all acquainted with faculty members who seem to have a Midas touch with the granting agencies. Seems like they write a note to the grantors, and lo! —money flows like water from a broken valve.

We usually are surprised on the rare occasions when these folks have a brief gap, or a major break, in their funding streams, but we shouldn't be. Everyone, even people with long histories of successfully getting grants, takes a hit now and then.

Maybe a panel didn't like the direction the program was going. Maybe the research outlived its obvious usefulness. Maybe the panel missed the point of the proposal. All we have to do is think about how many grant proposals get submitted, and how many get funded.

Most grant proposals are not funded. Most really good grant proposals are not funded. Most competitive grant proposals are submitted two or three times before they finally hit pay dirt. We need to be emotionally, psychologically and strategically prepared for disappointments in funding for two reasons.

It's not easy

First, competitive grant proposals are not easy to produce. We invest a lot of time, effort, creative energy, planning, budgeting, administrative skill and persuasively eloquent writing into a competitive grant proposal. We heavily invest our emotional energy into the proposal. Then we learn that the proposal will not be funded.

It's hard to feel real good about that.

Another reason we want to be emotionally prepared for disappointments is because the negative news often is attended by some pretty tough criticism of our proposal. Many times the criticism is not carefully expressed, and we get bruised even more than necessary. Often the criticism flows beyond the objective content of the proposal and into the personal regions of our lives.

We read not only that we have produced an unfundable proposal, but that we are inherently unfundable scientists.

I often have thought review panels could greatly improve the life quality of scientists by consulting experts on courtesy.

Surely there must be language that can attenuate the brutish, thuggy criticisms leveled by callous reviewers.

Perhaps in a more enlightened future, reviewers will attend to this human aspect of rejected grant proposals. In the meantime, a little emotional preparation will help us realize this is just part of the business.

Harsh reviews reflect far more upon the linguistic and social shortcomings of reviewers than upon ourselves.

Laying siege

I often have thought that I don't write grant proposals. I lay siege.

The siege metaphor helps develop a long-term vision of funding our projects, rather than focus on the short-term outcome of any single grant proposal.

We want to maintain our vision that writing competitive grant proposals is about persuading people to give us money to do useful work. It follows that the most important preparation for rejected grant proposals is strategic preparation.

Getting our projects funded may require two or three rounds of granting. Submitting the first proposal can be regarded as just a single step in a larger process. We take the (inevitable) rejection as an early step in the process. The rejection does not say we're not going to be funded; it says now it's time to go to work.

What work can we do on rejected proposals? Plenty.

First things first

The first thing is to get all the available information on what happened to our proposals. Some agencies, such as NIH, automatically send the review panel's comments and recommendations some weeks after the evaluation meeting.

Sometimes we have to call or write to request that the comments be sent to us. Then we can really study the comments, always asking, "What are they actually saying here?"

We can share the comments with colleagues, asking for their interpretations. Most agencies employ program officers, whose specific charge is to help people understand what happened to their proposals. Program officers seem to enjoy talking with people. The program officers usually sit in on the evaluation meetings, and we can ask for their interpretations of the discussion on our proposals.

Was our proposal aligned with the mission of the panel? Was the project simply less important than other projects? Did the panel understand the proposal? Did the discussion focus on the quality of the proposal, or on the quality of the project?

Collect information

We can collect a good bit of information about our proposals from the review panel and from the program officer. We can use the information to help guide the development of our revised proposal.

Sometimes we can get help from colleagues who have been involved in review panels. The colleagues might be able to help interpret the remarks of the panel that read our proposals and provide us with a "...this really means... "

A friend of mine was having a hard time breaking into NIH some years ago, so he approached a very senior, well-funded individual during a scientific meeting. My friend didn't know the fellow, so he introduced himself and blurted out that he needed some help with his grant proposal. He must have received some pretty good advice, because a year later he was rolling in the big bucks. It kind of warped his attitude about his stature as a scientist, too, but that's another story.

I had a similar experience. NIH rejected a proposal that was based on a really neat idea, and I just could not figure out what was wrong. I called a senior colleague and arranged to present a seminar to his department. During the dinner that followed, we discussed the work and my proposal. Again, by acting on some pretty good advice, the proposal was funded on the second round.

Colleagues can be a major resource in competitive grant writing.

We also can visit our granting agencies. Some universities provide travel money for the purpose. Think of it as a sort of business holiday. Get a little travel packet, go to D.C., drop in on your program officers, treat yourself to an above-average dinner.

When you're in the program officer's office you can discuss your research program, ask questions about the grant proposal reviewing panel and talk about your specific proposal. Visits of this sort help because we can get some straight talk about proposals, and the program officers get a better understanding of us and our University. Of course, you always run the risk of finding yourself on a grant reviewing panel, too.

SELECTED RESOURCES ON GRANT WRITING

BIBLIOGRAPHY

It would be hard to say when I first became aware of books on how to write successful grant proposals. It seems to me that writing these has become a cottage industry. Maybe some people begin by getting a couple of grant funded, then, in a completely, totally humanitarian gesture, they move into helping others by writing books on the topic. My completely, totally humanitarian gesture follows, in the form of a brief bibliography of several completely, totally humanitarian gestures. These resources are available in most university libraries.

Borland, A. and Margolin, J.E. (1990) Foundation Center's User Friendly Guide: Grant seekers' guide to research

resources. The Center, New York, N.Y.

Bauer, D.G. (1988) The "How To" Grants Manual. Second Edition. Macmillan Publishing Co., New York, N.Y.

Escherich, P.L. and McManus, R.E. (1983) Sources of Federal Funds for Biological Research. Museum of Natural

History, University of Kansas, Lawrence, KS.

High, G.R. (1991) Getting Funded: The art of writing successful proposals. School of Urban and Public Affairs, Univ.

Texas - Arlington, TX.

Hill, J.N. and Whalen, T. (1993) How to Create and Present Successful Government Proposals: Techniques for

today's tough economy. IEEE Press, Princeton, N.J.

Lefforts, R. (1990) Getting a Grant in the 1990s: How to write successful grant proposals. Prentice Hall Press, New

York, N.Y.

Rice, J.B. (1995) Applying for Research Funding: Getting started and getting funded. Sage Publications, Thousand

Oaks, CA.

Reif-Lehrer, L. (1989) Going for Gold: some dos and don'ts for grant seekers. NIH - National Institute of Alcohol

Abuse, Washington, D.C.

Horace Mann Learning Center. (1991) Reviewing Applications for Discretionary Grants and Cooperative Agreements: A Workbook for Application Reviewers. Horace Mann Learning Center, Washington, D.C.

NIH - National Institutes of Diabetes and Digestive and Kidney Diseases. (1988) Administrative and Review Guidelines

for Program Project Grant Applications. NIH, Washington, D.C.

NIH - Division of Research Grants (annually): DRG Peer Review Trends. NIH, Washington, D.C.

USDA - National Research Initiatives Competitive Grants Program: Abstracts of Funded Grants. USDA Publications,

Washington, D.C.

GENERAL WRITING RESOURCES

Elbow, Peter. (1981) Writing with Power: Techniques for Mastering the Writing Process, Oxford University Press,

New York, N.Y.

Strunk, Williams, Jr., and E.B. White (1979) The Elements of Style, Third Edition, MacMillan Publishing Co., Inc., New

York, N.Y.

Williams, Joseph M. (1990) Style: Toward Clarity and Grace, The University of Chicago Press, Chicago, Ill.

Zinsser, William. (1985) On Writing Well, Harper & Row, New York, N.Y.

GRANT PROPOSAL QUALITY CHECK

APPENDIX A

Planning to write the proposal

Who will write the proposal? _____

Who will type the boiler plate? _____

Who will do the budget? _____

Who will produce the final draft? _____

To which granting agency are you submitting? _____

What do you know about the agency? _____

What are the submission dates? _____

Which date are you planning to target? _____

Are any cooperators or support staff planning vacation or other travel?

Do you have a timeline for this proposal? _____

Did you discuss a pre-review with colleagues? Who will do it for you?

If you decided to forego a pre-review, note to yourself why? _____

(real reason) Didn't allow enough time.

Looking back on the completed proposal

What makes this grant proposal competitive? Take time to write a 25-50 word response. If you find yourself at a loss for words, perhaps you should rethink the proposal.

Checking the budget

Salaries _____ Principal investigator?
_____ Post-doctoral scientists?
_____ Graduate students?
_____ Lab helpers?

Did you factor in benefits?

- Professionals
- Graduate students
- Not for helpers
- Equipment
- Supplies
- Operating
- Travel
- Publication costs

Checking the writing effectiveness

- Are the objectives clearly stated?
- Does the background and significance develop a story?
- Does the preliminary data section make these two points?
- We are qualified to do the work
- The work has a sound theoretical basis
- Does the experimental design make sense?
- Is there a timetable for the work to be performed?

PRE-REVIEW WORKSHEET

APPENDIX B

Copy this and give it to your colleague with the proposal.

- Can I state the aim in 10 words?
- Is the background readable?
- Does the importance of the work stand out?
- Does the preliminary data section convey a confidence that the investigators can do the work, and the work has a sound theoretical basis?
- Do the experiments make sense?
- Is there a clear, and logical, statement of the gains from each experiment?
- WOULD YOU FUND THIS PROPOSAL?

WALKING THE WALK : ROUTING YOUR PROPOSAL

APPENDIX C

Every institution has an established policy on routing grant proposals through the system before the proposal is submitted to a granting agency. It is up to each of us to learn the correct procedures in our particular situation. The following pages provide some thoughts on grant administration and give a specific example of routing proposals through UNL's Institute of Agriculture and Natural Resources.

Let us look at this from two perspectives. First, we'll take it from the point of view of day-to-day, off-the-shelf, garden-variety faculty members such as ourselves. We convert one of our many prioritized project ideas into a grant proposal. We write it up, send it in, and—hurray!—we are awarded a big pocket of money. We do the work and write the usual 50 or 60 reports grant agencies seem to enjoy on something close to a weekly basis, plus we write a scientific paper or two.

Unfortunately, just as the process is getting underway, administrators and bureaucrats of all stripes worm their ways out of the woodwork and have us filling out new, virtually incomprehensible forms. We grumble, and get visions of people lying awake in the dark of night, conjuring up new forms.

There is another point of view.

University administrators do not simply set up accounts so we can spend our grant money, then head down to the pub for a well-earned stout (ever wonder why they call it "stout"?).

Universities are charged with accounting for all expenditures associated with our grants. How much money was spent?

What was purchased? Who was hired? You think we have to do paperwork!

The University also is charged with protecting granting agencies from cheaters, thieves, embezzlers, strong-armed bandits and other riff-raff. The protections require more accountability and, it goes without saying, more reporting.

One consequence

The main consequence of the charge to the University is that administrators need our help to keep track of their money.

Money we use to do work. All universities, institutes, think-tanks and well-doers are required to establish procedures for grant administration. UNL and IANR have procedures, and we are expected to do our part to observe those procedures. Were the University to fail in its charge to account for funds, we would have a REAL hard time getting grant proposals funded.

Here is a brief sketch of our procedures to help the University keep track of things.

The proposal route

All grant proposals are routed through the University submission process in the company of a proposal routing form, formally titled the University of Nebraska-Lincoln Request for Proposal Approval and Submission. The form requests a fair amount of information and a series of signatures.

There are spaces for your signature as project director or principal investigator, and for the signatures of the unit administrator and the appropriate deans/directors. You will want to be sure the administrator or appropriate substitute is available to sign the form when you need the signature.

The unit administrator is responsible for assuring that all the wherewithal for conducting the work specified in your proposal is, in fact, available in your unit. The administrator is not able to commit resources in other units to your project.

Resources might include space, equipment, the expertise of a particular member of the unit, the availability of support staff personnel and transportation. Subtle aspects of this assurance may not immediately spring to mind.

For instance—are there sufficient electrical circuits to support any new equipment you may purchase? Is there enough room in your space to install new, grant-funded equipment? Does the unit have appropriate desk and office space for individuals, such as post-doctoral research associates who are hired to conduct the work in the proposal?

By signing the routing form, the unit administrator asserts that all resources necessary to perform the work specified in the grant proposal are available within the unit.

Many grant proposals include cost sharing, in which UNL contributes some of the cost of the project under consideration.

Some granting agencies require cost sharing, which can be in the form of funds contributed, or can take the form of "in kind" contributions, such as salaries, secretarial assistance and graduate student stipends. Any commitments to share unit resources need the unit administrator's approval.

Many proposals are technically easy to write and produce in final form—easy enough that we can produce the entire thing on our office computers, and the unit support staff will not be involved in any phase of producing the proposal. Research or other activities specified in the proposals already may be an integral part of our programs, and thereby represent no unusual burden on our units.

It probably isn't necessary to bother the support staff with the news that you will be typing up still another grant proposal, but there are good reasons to make sure your unit administrator is aware that a grant proposal is coming out of your program.

The proposal routing form needs all signatures, even on very routine proposals.

Unit administrators are expected to know about the major activities in their units. Preparing grant proposals is a major activity, and it is wise to keep your administrator informed. Your attention to this detail also can be useful during annual staff evaluations, because administrators are asked to comment on how well we communicate within the unit.

After the unit administrator puts what passes for a signature on the routing form, the proposal goes to the proper division for the dean/director's signature. Again, costs that are to be shared at the division level will need approval. Before presenting a proposal to the dean for signature, a clerical assistant on the IANR staff will go through the proposal, check the budget carefully and look for other obvious problems. Here is where running the budget through the appropriate division before finalizing the proposal pays off. You can make any needed corrections and the budget can be rechecked and the proposal signed in less than one day.

A point of law

Again, grants are awarded to universities, not to individuals. There is a point of law here, because the University of Nebraska enters into a financial relationship with the granting agency. This relationship is formalized by the signature of an individual authorized to commit the University to binding contracts. It is the responsibility of the RGCO in UNL's City Campus Administration Building to review our proposals, and to obtain the appropriate signatures.

The legal connection and the need to account for grant funds help us understand why most of our proposals travel from IANR to the RGCO. Once again, staff in RGCO will review proposals.

1.The budget will be rechecked.

2.Proposals will be checked to be sure all licenses and approvals are in place. These include an IRB clearance if you plan to work with human subjects, IACUC approval if you work with vertebrate animals, an ionizing radiation license if you work with radioactive substances, hazardous material approval if appropriate, and recombinant DNA biosafety approval if you use the tools of molecular biology.

3.The budget will be rechecked.

4. The proposal routing form will be checked for signatures by the project director, unit administrator and dean/director.

5. The budget will be rechecked.

The RGCO also obtains the signature of an authorized University official for the proposal cover page or other appropriate forms. Finally, the proposal is packaged with a routine cover letter and mailed to the funding agency by the RGCO. Grant proposals are routinely sent by overnight express service, the cost of which is billed to your unit.

The road less traveled

All grant proposals should move from the unit administration to the appropriate IANR division, accompanied by a signed routing form. Some proposals will be sent to granting agencies directly from IANR. These include proposals to commodity boards and some proposals to the USDA.

We are notified when these proposals are approved by the agencies for funding. At that point, we can help keep the whole process on track by filling out an updated proposal routing form. The form takes the usual path, through the unit administrator's office, then to ARD, Extension or College of Agricultural Sciences and Natural Resources and then to the RGCO in the Administration Building.

There is a similarity between these routing forms and our federal and state tax forms: sooner or later we all fill them out.

APPENDIX D

Checklist:

Planning/Processing our Proposals

Date _____

Support staff available to help? _____

Budget preaudited? _____

Clearances:

IRB? _____

IACUC? _____

Ionizing radiation? _____

Recombinant DNA? _____

Hazardous materials? _____

Routing form completed? _____

Unit administrator sign-off? _____

Correct number of copies made? _____

Division administrator sign-off? _____

Package transferred to RGCO? _____

University contractual sign-off? _____

Mailed to agency? _____