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INTRODUCTION

This Workbook has been designed to assist you in the general preparation of an application that can be submitted to almost any funding agency. The basic approach to be utilized in this Workbook is predicated upon the concept that "A Grant is a Grant is a Grant." Thus, in the final analysis, it really does not matter to which funding agency you are applying. Every granting agency wants to support the very best ideas (provided that they are compatible with the overall mission of that funding agency) and that the basic elements that go into the evaluation of that idea will be the same. Is the proposed work significant? Are the applicants well qualified, and is there evidence that they will be able to actually do what is being proposed? Is the plan for the proposed work (approach) logical and well laid out, and have the applicants provided tangible evidence that they are capable of actually doing the work that has been proposed? Is the environment appropriate, and are the necessary resources available for completion of the project? Have the applicants provided information on exactly how the success of the project will be evaluated? Is the time allocated to do the work adequate and appropriate? Is the budget reasonable, well justified, and within the limits of what the funding agency can support? Finally, is the idea relatively novel, unique, innovative, or in some way easily distinguished from all other ideas that the funding agency will be asked to support? Fundamental grantsmanship requires close attention to ensuring that each of these important criteria is adequately and appropriately addressed somewhere in the application.

It is within the framework of these concepts that this Workbook has been designed. The Workbook itself is specifically separated into four equally important sections. The first section (CHAPTERS 1-6) describes the essential elements of what is required to prepare yourself to write the very best grant application of which you are capable. This is the "pre-writing" phase. The second section (CHAPTERS 7-10) describes the overall approach to the preparation of the all-important Overview/Executive Summary part of your grant application. The third section (CHAPTERS 11-15) discusses the various elements that normally serve as essential components of grant applications to many funding agencies. These topics include the development of the plan of work, the development of the budget, the documentation of the applicant credentials, and the description of the environment in which the proposed work will be performed. The fourth section (CHAPTERS 16-18) summarizes the remaining parts that should be written once you have completed an initial draft of the body of your application. These include the Abstract, the face page(s), a Table of Contents; and, of course, the title. We also underscore the importance of receiving critical feedback from your colleagues and ensuring that everything is in place when you submit your proposal to the funding agency. Attention to these sections will help ensure that your application will be maximally competitive before you ultimately submit it to a funding agency for consideration for possible support. Finally, we discuss the actual submission process.

Given that there are more than two dozen federal funding agencies, multiple organizations, and literally tens of thousands of foundations that provide grant support, it should be readily apparent that not all funding agencies would request exactly the same information in exactly the same format. Therefore, it will be necessary for most readers of this Workbook to extrapolate from the information presented to make the closest match with what is being requested in a given grant application format. Nevertheless, the key fundamental principles to be discussed in this Workbook remain relevant and independent of a given funding agency.
OVERVIEW PART ONE

BEFORE YOU BEGIN TO WRITE

Rarely do experienced applicants with successes in the grant-writing arena decide to write a grant application and immediately sit down and begin writing; rather, most first engage in a comprehensive period of preparation. In our opinion, most applicants fail to attract grant support in large part because they do not take the necessary steps in positioning themselves to be successful. CHAPTERS 1–6 discuss the key activities that you, as the applicant, should take before beginning to write the actual grant application.

CHAPTER 1 addresses the important question of why funding agencies award grants and what you need to understand about positioning yourself favorably when you apply to a funding agency for support of your idea.

CHAPTER 2 discusses the concept of what constitutes a good idea for a grant application and the steps that you, as the applicant, can take to ensure that your idea is truly a good one. This chapter is predicated upon the concept that a good idea, compatible with the mission of the funding agency, is the centerpiece of a good grant application.

CHAPTER 3 outlines a series of strategies that you can use to identify potential funding agencies for support of your idea. It also emphasizes the value of applying to multiple funding agencies rather than focusing exclusively on one.

CHAPTER 4 emphasizes the importance of understanding exactly what the review criteria are that will be used to evaluate the relative merits of your idea within a given funding agency. It also discusses what you need to know about exactly to whom you are writing — the reviewers.

CHAPTER 5 summarizes many of the important “do’s and don’ts” with respect to writing style and proper use of the English language. It includes a number of tips and strategies that you can use to make your proposal maximally reviewer friendly.

CHAPTER 6 addresses the critical issue of adequate time to commit to the grant-writing process — undeniably the single most important element necessary for any grant writer to be successful.

We strongly urge you to read and follow the recommendations in Part One. With our years of experience helping investigators to prepare grant applications to literally dozens of different funding agencies, we can assure you that those applicants who begin the process of grant writing by taking all the steps recommended at the end of each chapter will have a distinct competitive edge over applicants who do not undertake these activities.
CHAPTER 2

HOW TO DEVELOP A NOVEL, COMPELLING IDEA

As we pointed out in CHAPTER 1, all grant applications begin with an idea about which you are passionately excited. It is an indisputable fact that the application you write can only be as good as the idea with which you start. If you do not have a novel, compelling, or interesting idea that will address an important problem, issue, or need (and, equally important, be perceived by the funding agency to address an important problem or issue that will meet their needs), you are not going to get your proposal approved and funded. It is that simple. The lack of a really good idea is, without a doubt, among the single most important reasons for proposal failure. No amount of "window dressing" — grantmanship — can overcome such a fundamental flaw. Therefore, you (and we) need to do everything possible to ensure that your starting point — your idea — is nothing short of outstanding.

Jack Foster has written a highly humorous little book entitled How to Get Ideas (Gerrett-Koehler Publishers, San Francisco, 1996), in which he notes that the only difference between a genius and an ordinary person is the frequency with which each generates good ideas. He also observes that there is a very distinct sameness about the way in which people develop ideas. He provides the following examples of this latter point in his introduction:

"In a Technical for Producing Ideas, James Webb Young describes a five-step method for producing ideas. First, the mind must 'gather its raw materials' (the information that will form the conceptual foundation or underpinnings for the idea). Second, having this information base in place, the mind goes through a 'process of masticating those materials.' Third, as is often the case with good ideas, 'You drop the whole subject and put the problem out of your mind as completely as you can.' Fourth, 'Out of nowhere the idea will appear.' [And] Fifth, you 'take your little newborn idea out into the world of reality and see how it fares.' Helmholtz, the German philosopher, said he used three steps to get new thoughts. The first was 'Preparation,' the time during which he investigated the problem 'in all directions' (Young's second step). The second was 'Incubation,' when he didn't think consciously about the problem at all (Young's third step). The third was 'Illumination,' when 'happy ideas come unexpectedly without effort, like an inspiration' (Young's fourth step)."

Moshe F. Rubenstein, a specialist in problem solving at the University of California has conceptualized four distinct stages to problem solving: Stage one: Preparation. You go over the elements of the problem and study their relationships (Young's first and second steps). Stage two: Incubation. Unless you have been able to solve the problem quickly, you sleep on it. You may be frustrated at this stage because you have not been able to find an answer and do not see how you are going to (Young's third step). Stage three: Inspiration. You feel a spark of excitement as a solution, or a possible path to one suddenly appears (Young's fourth step). Stage four:
Verification. You check the solution to see if it really works (Young’s fifth step). In *Predator of the Universe: The Human Mind*, Charles S. Wakefield states there “is a series of [five] mental stages that identify the creative act.” First “is an awareness of the problem.” Second “comes a defining of the problem.” Third “comes a saturation in the problem and the factual data surrounding it” (Young’s first and second steps). Fourth “comes the period of incubation and surface calm” (Young’s third step). Fifth comes “the explosion — the mental insight, the sudden leap beyond logic, beyond the usual stepping stones to normal solutions” (Young’s fourth step).

Given this background, it will probably come as no surprise to you that generating a compelling, fundable idea for a proposal involves an essentially identical series of steps. Divide the process into six such steps: 1) define the problem or need that you want to address or field that you want to contribute to; 2) collect and critically analyze relevant background information/needs assessment that pertains to the proposed area of investigation; 3) generate a preliminary idea or activity that is pertinent to the problem or critical need that you have identified; 4) assess your idea’s potential for success (that is, within the framework of the mission of a potential funding agency) and modify it, if necessary; 5) seek constructive criticism of your idea from known peers, colleagues, and; 6) refine the idea or activity to maximize its potential for impact on your field. Let us consider in more detail each one of the preceding six steps.

1. Define the Problem or Need That You Want to Address. Your first task under this step is to identify a specific problem or an important need. It must be one that your peers (and the funding agency) will see as worthy of being addressed. The problem should be one that is a step along the continuum of professional activities that is leading you toward attainment of your long-term professional (career) goal. (Thus, you must have a clear concept of what that goal is before you begin the process of developing an idea for your proposal.) It should also be one that can be resolved, addressed, or achieved in a realistic amount of time, for example, through work that will be conducted under the auspices of the grant award that will (hopefully) be the end result of the proposal that you will write here.

Once you have done this, your second task will be to define this problem or need in such a way that it will allow you (or legitimately position yourself as an acknowledged expert or leader in higher education) to seize opportunities to identify a niche from within the area of your broad interest that is not overworked and would therefore be potentially perceived as passe by the reviewers of your proposal. If possible, you want to position yourself to be first in the area that you have chosen to write your proposal about, because very few reviewers will care about funding your project if it is mainly for the purpose either of repeating or marginally expanding the work that has already been done by others. There are, unfortunately, simply not enough resources available in any funding agency to fund “me too” projects, and thus the idea that you want to pursue, or the need that you think should be addressed must be able to be readily distinguishable from all other similar previously developed ideas or needs.

2. Collect and Critically Analyze Relevant Background Information/Needs Assessment That Pertains to the Proposed Area of Investigation. A comprehensive understanding of what has already been done in this particular field or area is the next step in generating a fundable idea. This is necessary for at least three reasons. First, you need to determine what is known or has been established earlier. Second, you need to determine what types of knowledge is reliable, accurate, or complete needs to be critically examined. It is highly unlikely that absolutely nothing that would be potentially relevant to the idea that you wish to explore will have been done, and it is critical that you know what the “state of the art” of the field is. And third, before you can critically evaluate the relative merits of your idea, you need to determine exactly who has already done what in this particular field or area.

For the purpose of generating a first-rate idea, determining what is known and not known requires that you do more than read abstracts that you obtained electronically from reference databases; rather, detailed and critical analyses of the pertinent past and current literature is required. One helpful approach is to photocopy the first page of any relevant journal article or professional report that you might want to include in the development of your comprehensive review of what is known in the field. The first page will almost always contain the authors’ abstract or summary. As you read through the publication, annotate the photocopied first page with any important information that was not included in the abstract. As you annotate, you should note any gaps in the knowledge base or concepts that the authors have identified as not known. Finally, you should include remarks about the quality of the work and critically evaluate the conclusions that were drawn from it. You may then file or catalogue the annotated photocopy with a list of key words that you expand as you proceed with your critical review of the literature.

It is essential that you make yourself knowledgeable in the areas related to the problem or need that you will address in your proposal. It is also important that you exceed the boundaries in your review of the relevant literature related to your proposed project. It is often extremely helpful, and thus advisable, to branch out to see what is happening in areas that are somewhat related to your own area of interest. Indeed, some of the best ideas come from extrapolation of an idea or concept in one field to a related field, and there are many examples of this in the literature.

3. Generate a Preliminary Idea or Activity That is Pertinent to the Problem or Critical Need That You have Identified. As you work your way through the literature, you will become increasingly aware of what is known and what is not and what others have done or attempted. Invariably, you will begin to form ideas as to which gaps in the knowledge base are most important, or what the needs in the field are, and how they can best be filled. Make a note of such ideas. However, at this stage in the development of your idea, do not spend any more time than that, because many of your early ideas may prove to be sophomoric as you become more critically cognizant with the literature. Also, major shifts in your insight will almost certainly occur as you view your ideas in the context of how they relate to each other. Some of your early ideas may even be those that other people in the field have already tried and perhaps shown not to be fruitful. Therefore, at this point, put such “idea sheets” into a notebook or file and continue with your critical review of what has already been done in the field or area of interest.

Once you have completed your review, go back to the ideas that you have written down. Almost without exception, as you review them you will find that inspiration strikes. But if it does not, do not be alarmed; this can be a slow and frustrating process, as many others before you have confirmed. If you are not comfortable with the outcome, put your thoughts back in the “idea drawer” for a few days and then take another look at them. This time, try creating an outline or diagram of your various pieces of information in order to better establish how the ideas and concepts might relate to one another. Eventually, you can expect that the proverbial light bulb will come on. When it does, you will know it, because you will be genuinely excited by the prospects that become apparent to you. Then you need to ask yourself two really important questions:

1. Will this idea impact significantly on my field?

And, if so,

2. Can I convince others of this fact?
If your answer to both parts is "yes," you have crossed the Rubicon and are on your way.
On the other hand, if you find that you cannot say with conviction that your idea has the potential to advance your field substantively or fill some sort of important need, then you have to accept the conclusion that you are not yet ready to write a truly competitive (i.e., successful) grant application. You need to either keep trying to evolve a more novel, important idea in the same area or shift to a new problem that has the potential to pass this "impact" test. Once again, please keep in mind that this is the first key "litmus test" that all reviewers of your proposal will be looking for. If you cannot convincingly make the case in your own mind that your idea will significantly make an impact in your field, all the grantmanship strategies that we will discuss in this Workbook will not help you.

4. Assess Your Idea’s Potential for Success and Modify It, If Necessary. Assuming that you have been successful in generating a preliminary idea about which you are (genuinely) excited, you need to then assess its potential for success before you decide that it would be an appropriate one to serve as the basis for your grant application. There are three criteria that you must consider.

Critically assess your own ability to pursue the idea. Regardless of how good your idea would be conceptually, it has to be one that is actually within your capabilities to pursue successfully. For example, will you, as Principal Investigator or Project Director, have sufficient time to devote to the project? If you are a senior person with many different kinds of professional, educational, and administrative responsibilities, is it credible to take on the additional work that will be required? If you are a relatively new applicant, are you in a position to commit enough time? The latter is an important question, because reviewers usually expect a greater time commitment from junior compared with more senior applicants. Will you and your collaborators or co-applicants have all the expertise necessary to accomplish the work that will be proposed? If not, can the missing expertise be acquired by engaging either a consultant or another collaborator?

Do you and your sponsoring institution have the resources that will be required to pursue the kind of work that you propose? If the answer to that question is "no," are you able to obtain them? Will you have the initial resources (i.e., funds) and personnel necessary to generate the potential preliminary information, results, or supportive material that will convince all the reviewers that you have a clear competitive edge? If your proposal is study subjects or population oriented, will you have access to a sufficient number of study subjects who meet the criteria so that a statistically valid outcome will be possible? Will you have difficulty obtaining informed consent and approval from the relevant Institutional Review Board? If not, can you collaborate with individuals at other institutions or organizations who have similar interests? The answers to these and similar questions have to be answered convincingly in your favor or else there is little point in going forward, no matter how good your idea may be conceptually.

Unfortunately, only you, and perhaps your more experienced colleagues from whom you will seek advice, are in an optimal position to answer these types of questions.

Initial assessment of your capabilities to pursue your idea is important because if your proposal were to be successful and you were actually to receive the grant award, there would be an expectation that you will actually deliver on what you have promised in your proposal. In fact, the day that your grant is funded is the day that the clock starts ticking. If you are not immediately prepared to begin working on your project on day one, you place yourself at a real disadvantage toward completion of the project. Paradoxically, probably one of the worst things that can happen to you is that you would receive a grant before you were ready. Your failure to deliver on the promises made in a funded proposal will not sit well with the funding agency and will markedly reduce your ability to compete in the future with that agency.

Critically assess your competition. We think it is safe to assume that more than one person will generate the same good idea independently, usually within the same general timeframe. Therefore, you need to know what studies or activities have already been funded in the area for which you are considering seeking grant support. Clearly, you want to avoid writing a grant application that is similar (or, even worse, identical) to one that has already been funded (or work that has already been done) and, if such funded grants are out there, you want to know about them so that you can use them to stimulate and extend your own thinking and planning rather than simply re-create the wheel. Fortunately, there are a lot of ways to get information on already-funded projects, depending to some extent on the particular funders or agency from which you are seeking support. In the following paragraphs, we will review some of the more easily accessible ways to get information on funded grants, much of which is available on the Internet.

If you are interested in federally funded grants in the health professions, you can electronically access the Computer Retrieval of Information on Scientific Projects (CRISIP) database, http://crisip.cit.nih.gov/. This Web site lists all grants that the United States Public Health Service has funded. Most of this database pertains to extramural projects, the vast majority of which have been funded by the National Institutes of Health (NIH) and the Substance Abuse and Mental Health Services Administration (SAMHSA). A few of the listed grants will be those that have been supported by the Centers for Disease Control and Prevention (CDC), the Food and Drug Administration (FDA), the Health Resources and Services Administration (HRSA), and the Agency for Health Care Policy and Research (AHCPR). CRISIP also contains information on intramural research programs of the NIH and FDA. This database can be readily searched by current awards as well as historically, providing important information on funding trends in a given field or area. It can also be searched by institution, by state, or by the name of the individual to whom the grant was awarded. Thus, this could be a great resource to bring you up-to-date on what is going on in a given field or discipline.

Similar databases are available for the National Science Foundation (for funded projects from 1989 onward, go to https://www.fastlane.nsf.gov/iaAIAStart.htm), the U.S. Department of Agriculture (Current Research Information System [CRIS] database, http://cris.cscs.usda.gov/), and the National Aeronautics and Space Administration (found in the NASA Awards Taskbook at http://peer1.nasapsr.com/peer_review/taskbook/). If you are interested in identifying previously funded grants from the National Endowment for the Humanities, this is available at http://www.neh.gov/grants/awards/search/index.hmtl. Finally, you can also access most federally funded research grants (NIH, NSF, USDA) and those that the United Kingdom’s Medical Research Council has funded by going to http://fundedresearch.cos.com/. This is a Community of Science Internet site to which either you or your institution or organization must subscribe (i.e., pay for) in order to have access (http://registration.cos.com/cos/basic.html).

A Web site is being created for all federally funded grant activity at http://www.grants.gov. This site was initially intended to be fully operational by the end of 2003; however, given the magnitude of the undertaking, it is perhaps not surprising that it is still under development and will likely not be fully operational for another five years or so. It will essentially be a "one-stop-shopping" site for all federally funded grant activity. Visitors to the site will be able to easily access grant award information for virtually any area of activity currently supported by the federal government. Also, as will be pointed out in more detail later on in this Workbook, it will provide access to other essential elements associated with the grant-writing process and, more specifically, the identification of federal funding opportunities.

To retrieve information from most of these databases, you can enter the names of individ-
Your field will still be able to understand. If you are not able to talk about your ideas, you will be significantly less able to write about them. Because the ultimate objective of every proposal is to explain in writing your ideas in such a way that reviewers can both understand and get excited about them, it seems that a logical precursor to writing about your ideas would be the ability to talk about them.

As an additional point, we often hear the concern that it is not wise to discuss ideas with others because this opens the opportunity for them to "steal" the ideas. Certainly this is always a possibility; however, given the benefits that accrue from discussing your ideas with others relative to the risk of having your ideas stolen, we are convinced that the situations in which not discussing your ideas with others would be preferable are few and far between. This does not mean that you should not exercise discretion in selecting the individuals with whom to discuss your ideas; there will sometimes be that particular individual whose level of integrity would not preclude stealing (one of the forms of plagiarism) as a perfectly acceptable behavior.

One of the critical points to evaluate at this stage of your idea's development is your intrinsic level of its enthusiasm for that idea. This is an important concept because your level of enthusiasm will be the rate-limiting step for the level of enthusiasm of your potential reviewers. Simply put, if you are not enthusiastic about your idea, you can be 100% certain that the reviewers will never be more enthusiastic. In all likelihood, because of the problems that are inherent to transfer of ideas (and enthusiasm) from your mind onto paper, reviewers will most likely be less enthusiastic than you. Given this fact, as well as the fact that you will probably be spending a considerable portion of the next three to four months wedded to this idea, this will become a very painful experience if you are not truly excited about it, and in the worst-case scenario you may well abandon the project entirely before its completion. The latter case would be a terrible waste of your valuable time and energies.

6. Refine the Idea or Activity to Maximize Its Potential for Impact on Your Field. The sixth and final step in this process is to critically consider the feedback that you receive from all your colleagues and, if you concur, to modify your idea accordingly. If you do not fully concur, this can be a time of painful decision making. In such circumstances, you may want to seek the advice of additional colleagues before you make any changes. You must have total confidence that the final product — the idea that will drive your proposal — is completely sound and merits support from a funding agency. If you do not believe you will be able to bring to your project the levels of enthusiasm and commitment that are necessary to write an outstanding application.

In summary, it is of immeasurable value to you to spend the necessary time thinking about and refining your idea so that it will be crystal clear in your own mind that it is actually doable by you and your colleagues and that it will be unlikely to be perceived as a "me too" idea. It is also important that you have received input from your colleagues as to its importance and interest. After all, it is the idea that will be the centerpiece of your proposal.

DEVELOPMENTAL STEPS FOR CHAPTER 2

1. Formulate and write out a brief paragraph of an initial idea that is closely related to your area of interest or expertise.
2. List, as bullets, the strengths (and any weaknesses or deficiencies) as to why this is a good idea for you to pursue.
3. List how you could "fix" any deficiencies identified (e.g., consultants, collaborators, additional resources, etc.).
4. Comprehensively review the published literature and, if appropriate, the funded awards'
CHAPTER 3

IDENTIFYING POTENTIAL FUNDING AGENCIES FOR YOUR IDEA

Once you have developed and refined the idea for your proposal, you will need to refine your thinking with respect to the funding agency (or agencies) to which you will be making a request for support of those ideas. Fortunately, and as was pointed out in CHAPTER 1, there is no lack of potential funding agencies. In addition to the 26 federal funding agencies that provided grants of some sort, there are literally dozens of organizations and more than 75,000 different foundations. In addition, if you are at an academic institution, there are often institutional resources available to provide initial funding of an idea that has the potential to develop into a project that could attract interest from national or international funding sources. Finally, there are always potential opportunities to obtain resources from the industrial sector. Therefore, we are reasonably confident that if you have a good idea that has been through the relatively rigorous process that we outlined in CHAPTER 2, there is likely to be some organization that would at least entertain the possibility of funding it. The goal is to identify the most likely funding agencies and all relevant funding opportunities.

Fortunately, there are a number of strategies that you may use to begin to look for funding agencies to support your idea. We suspect that, based upon either experiences or successes that you or your colleagues have had, you already have a pretty good idea of one or more funding sources that would be likely funding opportunities for your proposed project. However, we strongly suggest that, even though you may have a particular bias toward a specific funding agency, you nevertheless consider all potential funding agencies that might have an interest in your idea. We are also convinced that with a little effort on your part (which might require slight modification of your idea in order to make it fit with a particular funding agencies mission), you should be able to find several organizations that would be appropriate.

Several questions that invariably arise concerning proposals to more than one funding source for support of the same idea include 1) whether proposals to multiple agencies are even acceptable or allowed and 2) whether doing so places your proposal at a potential competitive disadvantage in its review and evaluation. Regarding the first question, it is important to remember that, unlike the publication of original material in a scholarly or professional journal, where it is expected that the material will not have been submitted for consideration for publication elsewhere (at least until a decision is made by the editor), such constraints rarely apply when looking for grant support for your idea. There are, of course, exceptions to this rule, and it is important to always know what, if any, those constraints might be. Regarding the second question, most reviewers or funding agencies will not penalize an applicant for submitting proposals on basically the same idea to multiple funding agencies. In fact, it is likely that they do exactly the same thing with their grant proposals. However, in fairness, you need to fully disclose the fact that you have done this when you submit your proposal to any given funding agency. Should you receive an offer of support from more than one funding agency to which you have applied, you would have to make the decision as to which award to accept, however, we think that this type of problem is not an unpleasant one to have to deal with. You may even be able to