Grant Writing Guide

Vernier Software & Technology's Guide to Funding Educational Technology Initiatives

Vernier Software & Technology supports the invaluable work of our professional colleagues in K–College education. This guide provides helpful advice on the writing of grants to fund data-collection technology initiatives for today's science programs. We understand the educational efficacy of probeware use in the classroom—as demonstrated in peer-reviewed studies—and seek to aid your efforts to bring these important tools to your K–12 schools, college laboratories, and field investigations.

-Your colleagues at Vernier

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Supporting Your Vision

As district funds for science, technology, engineering, and mathematics (STEM) programs are reallocated, many educators are forced to look to alternative sources of funding for technology initiatives in their classrooms. Technology in *your* classroom, however, does not need to be financially out of reach. Plenty of grant money is out there—the hardest part is finding it.

Once you do locate a funding source that matches your needs, it is simply a matter of writing a grant proposal, then adhering to the project and reporting deadlines as required by the source. This guide is designed to help you write a successful grant proposal. It is designed, as well, to provide you with links to white papers and supporting articles that may aid you as you write your proposal.

One white paper of particular note appears on the Vernier web site. In 2012, Vernier commissioned an independent analysis of the peer-reviewed literature detailing the educational benefits of data-collection technology. This white paper, available at http://www.vernier.com/whitepaper, concludes as follows:

> Research supports the instructional value of having students use technology tools such as those provided by Vernier probeware—featuring a wide variety of probes combined with powerful software—for data collection, analysis, and visualization. Results from the National Assessment of Educational Progress and other sources suggest that use of such technology tools can contribute to higher student test scores in science and deeper understanding of science concepts, particularly when probeware is used to support scientific investigations carried out by students.
>
> The potential value of probeware in science education is attested by guidelines and requirements from influential national organizations and state standards, many of which either specifically recommend probeware use or describe use of technology tools in ways that align well with probeware capabilities. Additionally, Vernier probeware, software, and related instructional resources support student investigations that can provide experiences with core scientific practices, as called for in *A Framework for K–12 Science Education*.

Although the report's conclusion is provided above, we encourage you to download and read this 39-page document in its entirety. In the white paper, you will find research study summaries embedded alongside discussions of corresponding academic standards. Details included in this white paper and literature review may inform your thinking as you build your vision and strengthen your proposal.

Building Your Idea

Once you have an idea that requires outside funding, it is helpful to sit down with your colleagues and brainstorm about the categories and details that may comprise the grant funding proposal. Team-developed ideas on a topic, gathered in such a collaborative way, invariably lead to a much more comprehensive grant proposal. Be open-minded as you discuss goals with your team and do not be afraid to dream.

After you have generated a list of things you would like to include, you need to fine-tune the vision. Think about what it would take to actually implement your ideas and make them a reality. For example, what type of equipment is needed? What software is necessary? How will you train teachers either in your school or across your district to use this new technology? Make a detailed inventory of items and services that you will need to accomplish your vision. Be sure to include a complete parts and accessories list that specifies order codes and prices. Also, itemize the expendables (e.g., solutions and chemicals) used in science experiments.

Identifying Your Funding

Now that you have an idea, you need to find a funding source. Many sources provide funding, including federal and state agencies, major corporations, small businesses, foundations, local organizations, and various educational districts. Many of these sources post information about their funding initiatives on the internet.

A query that uses a good internet search engine, such as Google, will produce many web pages with information about funding sources and grant writing. While it may seem logical to look first to governmental agencies and large corporations for funding, do not overlook your local PTA, service organizations, or district foundations, as well. They often have funding available that goes unused.

Writing Your Proposal

Once you have identified a few possible funding sources, invest the time to find out a bit more about those organizations and to fully understand their funding criteria. Organizations' missions vary widely, as do their grant submission periods and project completion date requirements. For some organizations, it may be beneficial to first contact a representative through a query letter, telephone call, or email. Once contact is established, obtain a copy of the grant guidelines and then follow the guidelines closely.

Utilizing Ten Tips

Following are helpful tips on preparing a successful proposal:

1. **Communicate** the factual and the specific, that is, avoid the general and the emotional.

2. **Employ** language anyone can understand.

3. **Choose** a format that is clear and easy to read.

4. **Know** your funder and their guidelines to ensure you are meeting them.

5. **Start** with a brief summary, as a summary permits the reader to focus on your request.

6. **Propose** a realistic budget, and remember:
   - Do not ask for more than you need
   - Make sure the figures are correct
   - Keep records of how those figures were calculated

7. **Submit** all of the requested application materials.

8. **Exercise** patience; well-written proposals are much better received than harried ones.

9. **Read** the instructions, read the instructions again, and by all means, re-read the instructions.

10. **Meet** the deadline for your application.

Putting It All Together

Grant applications, generally speaking, follow these standard formatting conventions:

Title Page

Fill out all of the basic information, such as your name, address, telephone number, who the grant is for, the name of the program, the total cost of the program, and a brief, but concise summary of the program needs and goals.

Statement of Problem

Describe your problem and how you plan to solve it. This part needs to be deeply moving and motivating. Focus on the need and your objectives. Describe who will benefit from this program, and highlight how many people your program will serve. You need to create compelling interest in your program.

Goals

Define your goals and objectives. State your vision. Create enthusiasm and excitement for how your program goals will improve and enrich a poor situation.

Plan of Action

Provide details for how you will meet your goals and objectives. Explain the materials and services you will need and exactly how they will be used. Describe a clear plan of action, and explain how you will implement your plan. If this is a time-related program, show a detailed timeline.

Staff and Facilities

Identify everyone involved in your project. Determine how you or your staff will adhere to the plan. Describe the facilities and any equipment necessary for the success of your program. If appropriate, mention whether you or others have had special training that relates to your program.

Evaluation

Document how you will determine the success of the program throughout its duration. Detail how you will determine if your goals and objectives have been met. Incorporate requirements set forth by the funding organization.

Budget

Define program costs and expenses. Be sure to include everything from equipment to training. Be realistic and accurate with budget information. Identify who will manage the money and how they will account for all financial dealings.

Getting Help

Do you feel as if you could use a little help with your grant writing? There are some wonderful, useful sites available to guide you every step of the way:

Fundsnet Services.com
http://www.fundsnetservices.com/

A comprehensive source for grant writing. Includes links to sites on writing successful grants as well as applications, forms, and fundraising information.

Non-Profit Guides
http://www.npguides.org/index.html

Designed to help you win grant funds. Includes a guide to writing funding proposals, sample letters, budgets, and applications as well as links to other grant writing sites.

Foundation Center
http://foundationcenter.org/

The Foundation Center connects grant writers with grant funding organizations.

AAAS *Science* Magazine
http://www.sciencemag.org/careers/where-search-funding

Provides a list of where to get funding and a whole section on how to get funding. There are tool kits, discussions on common mistakes, and a brief tutorial on how to best follow submission guidelines.

STEMfinity
https://www.stemfinity.com/STEM-Education-Grants

“STEM funding opportunities and free grant writing services” . This site provides a list of links to grants supporting STEM in the classroom for every state.

University of Wisconsin-Madison Libraries
https://researchguides.library.wisc.edu/proposalwriting/websites

Provides links to resources for both federal and non-governmental funding, also offers examples of good proposals along with links to discussions about the elements that make an effective proposal. Grant-writing tips, budgeting information, and other funding guidance are included.

Supporting Your Proposal

Many funders are interested in seeing literature to substantiate your claim that your idea will improve instruction in your classroom. We have compiled a list of support articles describing the benefits of the use of computers, calculators, and handhelds for data collection in the classroom. Many of the articles, including Vernier's white paper, may be accessed directly on the internet. In addition, you will find a list of reference articles at the end of this document.

Following Up on Your Grant

Once you have been awarded a grant, it is important to follow up with the funder regarding expectations and payment information. Even if you were not awarded the grant, follow up with the funder to learn details about the organization's decision not to fund your proposal; such information may prove instructive in your next proposal.

Reference Articles

Gado, I. (2006). **"Inquiry-based Instructions Through Handheld-based Science Activities: Pre-Service Teachers' Attitude and Efficacy."** Journal of Technology and Teacher Education. 14(3), 501–529.
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Redish, Edward F., Jeffery M. Saul, and Richard N. Steinberg. (1997). **"On the Effectiveness of Active-Engagement Microcomputer-based Laboratories."** American Journal of Physics. 65, 45–54.
www.physics.umd.edu/perg/papers/redish/mbl/mbl1.html

Thornton, R.K. (2008). **"Effective Learning Environments for Computer Supported Instruction in the Physics Classroom and Laboratory."** In M. Vicentini and E. Sassi (Eds.), **"Connecting Research in Physics Education with Teacher Education."** Retrieved December 1, 2011.
http://www.vnr.st/xb4b

White Paper

The following white paper, mentioned within the body of this document, is available for download as an Adobe PDF file from the Vernier web site and contains additional references to articles that support the use of probeware in science education:

Vernier Software & Technology. (2012). **"What the Research Says About the Value of Probeware for Science Instruction."**
http://www.vernier.com/whitepaper