April 2004

RESEARCH News

OFFICE *of* RESEARCH *and* SPONSORED PROGRAMS

BREAKING THROUGH THE BARRIERS

On 12 February, Research and Sponsored Programs hosted an all-day grantwriting seminar, led by Dr. Robert A. Lucas, Director of the Institute for Scholarly Productivity in San Obispo, CA. Dr. Lucas has over 25 years' experience in helping faculty develop their resources and manage their time. A PhD in Medieval English Literature, he taught at the University of Michigan until moving into research administration, and he was Associate Vice-President for Graduate Studies, Research, and Faculty Development at California Polytechnic State University before establishing his independent institute. Widely published, he has served on the editorial boards of *Grants Magazine* and *Research Management Review* and the Executive Committee and as Chair of the Publications Committee of the National Council of University Research Administrators. The University of Illinois Press issued his book, *The Grants World Inside Out*, in 1992.

At his workshop, "Breaking through the Barriers to Writing Proposals," Wake Forest faculty described the problems that hamper their writing: perfectionism, intimidation, other commitments and difficulty prioritizing, breaking their research down for individual proposals, understanding and responding to contradictory reviews, writing a defensible hypothesis, having to sell themselves and their ideas, the pressure to achieve, and intracampus competition for foundation resources.

Drawing on Robert Boice's research on academic writing (*Professors as Writers*, 1990), Dr. Lucas dispelled some prevalent myths about writing that echoed our faculty's concerns:

1. *The work must be perfected in a single draft.* On the contrary, people who are comfortable writing knock out the parts that come easily and bracket more demanding paragraphs to fill in later.
2. *Writing must be spontaneous and inspired.* Boice conducted an experiment with professors over several weeks: some were asked to jot down their ideas on the fly; they had good ideas about every 5 days. Others were asked to write as they did normally; they had good ideas about every other day. Still others had to commit to 50 writing sessions, guaranteed by a personal check for $100 to an organization they despised; they had good ideas every day.
3. *Writing must proceed quickly.* "I write best under pressure" becomes "I write only under pressure."
4. *Writing is inherently difficult.* Therefore, we decide to do anything other than write—for example, literature search—and let anybody talk us out of it.

Lucas proposes a simple, practicable solution: write for half an hour every day. The time is short enough to protect from interruptions, and the continuity is more productive than binge writing, which is exhausting and difficult to repeat in a crowded schedule. Write while you're fresh, especially when you first wake up, and delay a pleasant activity, like showering or opening your email, until you've fulfilled your commitment. Establish a place, cleared of distractions, where you do nothing but write and can leave your work spread out. Less mentally demanding tasks like checking references can be put off to times of the day when you're less alert and energetic. Starting to write before you're "ready" can save time by clarifying your ideas and thus narrowing the literature search.

INSIDE

WAKE FOREST UNIVERSITY

Rather than making notes on 3x5 cards, we now generally photocopy an article, which leaves us without a scaffold for organizing our presentation. Dr. Lucas advises taking notes so that you can cut them up and shuffle them. Once they're keyed in, Microsoft Word has a function called *spike* that easily moves selected ideas around an outline. He also recommends *clustering* (see Gabriele Rico, *Writing the Natural Way*, 1983), a way of brainstorming or freewriting that faculty practiced with good results in the workshop. It allows you to keep writing even when you feel blocked. End your session at a place where the thread will be easy to pick up; Hemingway suggested the middle of a sentence. As for handling multiple projects, focus on one at a time; address the more problematic when fresh and do rote tasks when less so.

Because you are communicating, not meditating, share your writing with supportive, constructive friends as well as seasoned critics before sending it out. Data show that the earlier shared, the more likely the work will be published. Ask your readers the specific questions about which you're worried.

APPLICATION TO GRANTWRITING

How important is good writing to getting funded? Dr. Lucas notes that 1 in 5 proposals are turned down because the idea is bad; the success rate for resubmissions, informed by peer critiques, is higher. At the NIH, acceptance rates for first submissions are 19%; second, 29%; and third, 37%. A cost/benefit analysis thus dictates developing a proposal through resubmission and applying to sponsors and programs that reward pertinacity.

For example, sponsors may issue general calls and requests for proposals (RFPs). RFPs are announced if no one seems to be responding to a problem that the sponsor deems crucial. You may have as little as 3 weeks to submit, so they really test your infrastructure, and they may be short term, so resubmission possibilities are slim. Although RFPs outnumber general calls, because they focus the sponsor's spending, general calls are better for inexperienced researchers, because resubmission has better odds and you don't have to twist your work to fit the program description.

How can you learn what sponsors really want? If you want to publish an article, you open the journal to read samples; to write good grants, find a copy of a successful proposal. Start by asking RSP and funded colleagues for help. Check sponsors' websites - some have model proposals, even with budgets; others have lists of funded projects, so that you can contact the author of one that looks like what you want to do. If a project was funded by a federal sponsor, you can go so far as to subpoena the proposal through the Freedom of Information Act, but most grantees are flattered to share their success. There is no excuse for not strictly following the sponsors' guidelines and review criteria.

A career grows from a small internal award based on the dissertation to larger and larger grants based on preliminary results from the previous. The amount of unsupported personal time decreases if projects have thematic unity and accumulate resources, like instruments, databases, or bibliographies, along the way.

IDENTIFYING SPONSORS

To find the right sponsors, read your professional association newsletters and talk to colleagues in your field. RSP can search the Community of Science database for you or teach you to search. Certainly enter your profile to receive weekly funding alerts based on your keywords. Sponsor websites not only post guidelines but also other helpful information; for example, the Education Department's FIPSE program has advice on how to apply; NIH offers a model proposal; NSF posts a *Guide to Proposal Writing*. All these sources are linked to the RSP website under Proposal Preparation, Grantwriting Resources, along with the handouts from Dr. Lucas's talk (http://www.wfu.edu/RSP/writing.html).

There are four major sponsor types:

1. Federal sponsors have lots of money, clear programs and guidelines but are slow due to the peer review process.
2. States have less money and don't advertise their programs well, but the turn-around time is better, as proposals are not generally peer reviewed.
3. Private foundation spending is up to $25B, of which 90% goes to organizations and 10% to universities. They often reduce your budget .65 on the dollar. You can explore their funding histories online or through their annual reports. Three out of 5 want a letter of intent and respond to it within weeks; 1 of 5 will take a phone call and work with you to develop a proposal; 1 of 5 wants a full proposal. Guidelines can be poor, samples difficult to find, and reviews are seldom made available.
4. Corporate sponsors generally contact you based on a company executive or consultant seeing your publications or presentations. They favor local interests and university ties; never approach them or private foundations without first contacting Marty Edwards, Director of Foundation Relations (edwardms@wfu.edu; 758-5581) to make sure Wake Forest has no prior arrangements.

Phoning the Program Officer is essential; 85% of grantees had prior contact with the PO. Ask for interpretations of the guide-

lines, realistic budget requests, soft and hard page limits, appendices, and special programs supporting exploratory research or new investigators. POs have insight into the field's future and trends and can tell you if the project won't fly; they have an investment in developing strong proposals to keep their reviewers interested. Remember that grants are never reviewed blind; the Principal Investigator and the institution matter. Thus, your conviction can lead the PO to support your proposal over the panel's view; a Research Administrator calling in your stead can't convey your qualities. RSP Director Lori Messer suggests that, at best, she could participate in a conference call.

PROPOSAL SUBMISSION

POs may invite you to write a concept paper. If not, ask if you can send one; they are likely to say yes if you call 8-10 weeks in advance of the program deadline. If you are asked for a concept paper by a sponsor without peer review, you're 95% there. Note that if such a sponsor asks for a ballpark budget, and you lowball your estimate, not only might you have to try to do the project at the inadequate figure, but you may simply be rejected, damaging your own and your institution's credibility. Either get the budget right or highball, because they may give you the higher figure, even if you ask for less in the full proposal budget.

Following the guidelines triples the success rate. Sending one proposal to several sponsors is all right (although special rules apply to NIH and NSF), but make sure you tailor it to each sponsor's format and say where else you're applying.

In drafting your abstract, keep shortening the concept paper and remember that it's going to represent your work for years to come. Don't simply lift the first 2 paragraphs of your project description, because they won't mention your methods; 2 out of 5 proposals fail due to a defective methods section, which is the single most-cited reason for rejection. One expert suggested spending 75% of your time on writing the methods, which should note everything you're going to do, month by month. You can then use it to inform the budget. Even in the humanities, demonstrate in detail that the project is doable.

The basic tension in a proposal is in selling the magnitude of the problem against your ability to solve it. To show mastery, try to limit yourself to 2-3 succinct hypotheses, which should lead directly into the methods. Include fallback positions if something should fail. Since 1 out of 3 scientific reviewers thinks in graphic terms, include figures, tables, and timelines. Your credibility and currency are established, in part, by a refined literature survey with critical analysis, but be polite in case any of the authors are your reviewers. Make sure that they perceive your contribution to the field; a grant is no place for modesty, and don't trust them to pull it out of your 2-page CV. If you can't make a case for your preliminary work or publications, maybe you're not ready to apply.

BUDGET 2005: EDUCATION PROGRAMS

From *Federal Grants and Contracts Weekly* 28, no. 8 (17 February 2004)

While the FY2005 budget slightly increases Education Department funds, the National Science Foundation's Education and Human Resources Directorate would be cut 17.9% to emphasize human resources. Although research scores a 4.7% increase, K-12 programs are on the block.

Specifically, NSF would begin phasing out its $139M Math and Science Partnership and cutting elementary, secondary, and informal education programs 18.6%; the STEM Talent Expansion program by $9.9M; Advanced Technological Education, a major supporter of community colleges, by $7M; and the Robert Noyce Scholarship program to encourage STEM majors and professionals to become K-12 math and science teachers by nearly 50%. K-12 teacher development and centers for learning and teaching would be flat-funded.

On the good side, support for Integrative Graduate Education and Research Traineeships would go up $7M and core graduate research fellowships, $5.5M.

Other federal education funding would vary.

DoC: The budget would eliminate the Technology Opportunities Program (TOP) and the Public Telecommunications Facilities Program.

EPA: The Science To Achieve Results (STAR) research program would be reduced from $100M to $65M, but the fellowships program to train environmental researchers would increase $1.3M.

NASA: Educational programs would drop from $226M to $169M, despite proposed accelerated space exploration, while adding a $10M scholarship program to train new scientists and engineers.

NEH: At $33M, the "We the People" initiative, focused on US history, culture, and ideas, would become the largest competitive grant program in NEH history.

NEA: An $18M increase, the largest since 1984.

IMLS: A 14% increase to continue support for museums, libraries, and lifelong learning.

DoS: A $28.7M increase, mainly to reach out to the Muslim world with youth exchanges, international visitors, English learning, and teacher development.

CNS: Corporation for National and Community Service funding would grow by 9% to slightly more than $1B. The Learn and Serve America program would go up $3M for service-learning project grants to state education agencies, schools, colleges, and nonprofits.

HEALTH FUNDING

From *Federal Grants and Contracts Weekly* 28, no. 7 (9 February 2004)

The proposed fiscal 2005 federal budget would increase the Health and Human Services Department's discretionary budget, which drives competitive grant and contract programs, a scant 1.2%. At $28.8B, a proposed 2.7% raise, the National Institutes of Health exceeds the average but would continue the abrupt slowdown following the recent 5-year budget doubling.

The NIH budget would increase new competitive research project grants (RPGs), giving applicants an estimated 1-in-3 chance of funding. To compensate, it would halt the average increase in grant costs, particularly for new grants. NIH expects to fund 10,393 new/competing RPGs next year, an increase of 258, while the average cost increase for total RPGs is estimated at 2.8%, down from 3.7% in 2003.

The NIH plan emphasizes the roadmap initiative. Broken down by category, funds would total $137M for new pathways to discovery; $39M to research teams of the future; and $61M for re-engineering clinical research (see http://nihroadmap.nih.gov/).

In addition to stepping up biodefense research on targeted biological agents, NIH would launch a new $47.4M effort to develop radiological and nuclear countermeasures in three main areas: drugs to prevent injury from exposure; measures of radiological exposure and contamination; and methods to restore injured tissues and eliminate radioactive materials from tissues.

Among other HHS agencies, major funding hikes are proposed for faith-based and family-strengthening initiatives. The total includes a $50M grant program to promote responsible fatherhood; $186M for community-based abstinence programs, nearly doubling this year's $74M; $100M for the Compassion Capital Fund supporting faith-based efforts to deliver social services; $50M to mentor children of prisoners; and $10M for maternity group homes.

Health Resources and Services Administration: Funding dips, in part reflecting Bush's efforts to cut health professions programs. Bottom Line: $6.6B, down $610M

Centers for Disease Control and Prevention: Funds increase for chronic disease and prevention programs, including a $71M increase for community grants to reduce diabetes, obesity, and asthma. Bottom Line: $6.9B, down $58M

Substance Abuse and Mental Health Services (SAMHSA): A 6% increase, thanks to antidrug and mental health system transformation priorities and a new $100M Access to Recovery initiative that awards states competitive grants to give consumers a choice in substance abuse treatment through vouchers. Bottom Line: $3.6B, up $199M

NRC ON SHARING PUBLICATION-RELATED DATA AND MATERIALS

From *Office of Research Integrity Newsletter* 12, no. 1 (December 2003):6-7; oris.hhs.gov

A new National Research Council report, *Sharing Publication-Related Data and Materials*, specifies a uniform principle for sharing integral data and materials expeditiously (UPSIDE) plus 5 supporting principles and 10 recommendations.

The Uniform Principle states: ". . . An author's obligation is not only to release data and materials to enable others to verify or replicate published findings . . . but also to provide them in a form on which other scientists can build with further research."

Supporting Principles

1. Publications should include the integral data, algorithms, or other information necessary to support their major claims and to enable verification, replication, and expansion.
2. If central or integral information cannot be included in a publication for practical reasons (e.g., a large dataset), it should be made freely and readily accessible through other means (e.g., online) in a form that facilitates manipulation, analysis, and combination with other data.
3. If publicly accessible data repositories have been agreed on and are in general use by a research community, the relevant data should be deposited in one of them by the time of publication.
4. Authors should anticipate which materials integral to their publications are likely to be requested and state in the Materials and Methods section or elsewhere how to obtain them. If a material transfer agreement (MTA) is required, the URL where it can be viewed should be provided. If the authors do not have the rights to distribute the material, they should supply contact information for their original source. A frequently requested reagent can be made reasonably available on the commercial market or by an author's laboratory for the costs of production, quality control, updating, and shipping.

5. If a material integral to a publication is patented, the provider should make it available under a license for research use.

Recommendations

1. The scientific community should remain involved in crafting any legislation that provides additional database protection.
2. Scientific reviewers of papers submitted for publication should help to identify integral materials likely to be requested and when authors must provide additional information on obtaining them.
3. If a recipient makes a new substance with publication-related material, its providers should not demand exclusive license to commercialize it or require coauthorship on future publications.
4. All institutions engaged in technology transfer should closely examine the merits of adopting a standard MTA and champion efforts to streamline the process.
5. As a best practice, participants in publications should commit to a 60-day limit for negotiating publication-related MTAs and transmitting requested materials or data.
6. Scientific journals should prominently state clear policies for depositing materials in an appropriate repository and complex datasets in appropriate databases for the sharing of software and algorithms; the consequences for authors who do not adhere to these policies; and the procedure for registering complaints about noncompliance.
7. Research sponsors should prominently state clear policies for distributing publication-related materials and data by their grant or contract recipients or employees.
8. If an author does not comply with a request for data or materials in 60 days, and the requestor has determined whether extenuating circumstances (e.g., travel) have caused the delay, the requestor may contact the journal in which the paper was published. If that action is not successful in another 30 days, the requestor may contact the author's university or sponsor.
9. Sponsors should provide grant and contract recipients with the funds to disseminate publication-related data and materials.
10. When other investigators have contributed data or materials to published work, its authors should publicly acknowledge them.

See http://books.nap.edu/openbook/0309088593/html/index.html for the full text.

COST SHARING: MORE ISN'T ALWAYS BETTER

From *Grantseeker Tips* 121 (18 November 2003)

Lately, government agencies have requested *lowering* the amount of cost sharing in grant budgets. Why? Because higher levels mandate more detailed accounting by government auditors. If you ask NSF now, they are likely to say "thanks, but no thanks." NSF cost sharing, or matching, has dropped 34% in the last four years. Some researchers still hold the belief that they couldn't compete if they didn't include substantial cost sharing, but NSF is now telling grantseekers that if it isn't required, don't impose it on yourself. It is causing them an accounting nightmare.

NEH RETURNS TO FLAGGING

From *Chronicle of Higher Education,* 50, 19 (16 January 2004):A1

Flagging allows National Endowment for the Humanities officials to identify grant applications—often dealing with sexuality, race, or gender—for extra review. In some cases, flagged proposals that receive high marks from peer-review panels are rejected, while those with low marks receive funds.

When Lynne Cheney led the agency during the first Bush administration, critics charged that her frequent use of flagging politicized the process. The practice was rarely used by Clinton administration successors. Now current and former agency employees and members of the National Council for the Humanities, which oversees the agency, say proposals are being flagged and sometimes rejected, because they are not "traditional" enough. Others assert that the opinions of Clinton-appointed council members are being discounted.

Unlike NSF and NIH, at NEH, the chair must review and approve every grant awarded, and current Chair Bruce Cole and Deputy Chair Lynne Munson say they have a duty to flag proposals as a matter of quality, not ideology. The current Bush administration and Congress have blessed their tenure with $137M for fiscal 2004, an almost 10% increase over 2003 and the largest since 1979.

Cole taught art history and comparative literature at Indiana University for 28 years until tapped by President George H.W. Bush for the National Council for the Humanities in 1992. Munson first served the NEH as special assistant to Cheney. Like many senior staff Cole has brought in, Munson has no PhD and never held a college teaching position. She is the author of *Exhibitionism* (2000), an indictment of the art establishment praised by conservatives. Both take pride in their extensive involvement in the grant-making process.

Cole has publicly stated that the NEH should not be politicized. Projects on sex, race, and gender are welcome, he says, pointing to $7M to more than 100 projects on women's history and culture and nearly $5M to more than 50 projects in Islamic or Middle Eastern studies.

However, the number of flagged proposals has markedly increased. In November 2002, 51 out of an agency-wide total of 1,448 were flagged. By November 2003, 55 to *just one* of the agency's 5 divisions were flagged. Some of the flagged proposals from 2002 received high ratings from reviewers and program officers and were not approved.

Some find the return of a regime like Cheney's unsettling. She flagged many proposals related to race, gender, or sexuality and, once out of office, favored eliminating the NEH, because, she said, it promoted leftist scholarship. She didn't succeed, but the agency's budget was slashed by more than a third, forcing a reduction in staff and the size and number of awards. Now, many NEH employees and advocates are wary of voicing concerns about flagging for fear they will damage the agency.

Some council members see a method to the flagging. "My sense is that if it's something . . . having to do with gender, sexuality, race, ethnicity, or the Middle East, it gets red-flagged," says Pedro G. Castillo, a UC-Santa Cruz history professor appointed by Clinton. Elizabeth Fox-Genovese, professor of women's studies at Emory University, council member, and a Bush appointee often identified with conservative groups, says flagged proposals show "an excessive emphasis on a kind of politicized autobiographic take on 'my experience'."

With council committees taking a bigger role in funding, their composition has become a source of contention. The chair's staff chooses which council members serve on the panels. Clinton-appointed scholars have been placed on the federal/state-partnerships panel, which hears summaries of state humanities council activities and does not vote on grants.

THE NEH REVIEW PROCESS

1. An applicant sends a grant proposal to the endowment.
2. Staff determine peer-review panels on the basis of academic discipline, and these volunteers gather in Washington to discuss and grade the applications.
3. Staff examine the panels' grades and comments and other materials and then recommend projects for funding.
4. The chair and senior staff meet with program officers to discuss the applications, including those not recommended. They flag some proposals for further discussion by the National Council for the Humanities.
5. Council members receive information on all applications, including one-page project descriptions, peer-review grades, staff recommendations, and additional notes on those that have been flagged. They can now flag applications.
6. The council meets in Washington 4 times a year to discuss applications and to recommend to the NEH chair which to fund.
7. The chair reviews staff and council recommendations before making final decisions.

NEH FELLOWSHIPS FOR COLLEGE TEACHERS AND INDEPENDENT SCHOLARS - DEADLINE 1 MAY

Are the same disturbing trends also true for the sciences? See the report of the minority staff of the House Government Reform Committee's special investigations unit, "Politics and Science in the Bush Administration" http://www.house.gov/reform/min/politicsandscience/ and the Union of Concerned Scientists' report, "Scientific Integrity in Policymaking: An Investigation into the Bush Administration's Misuse of Science," http://www2.ucsusa.org/global_environment/rsi/report.html.

WFU FUNDED RESEARCH

October 2003- February 2004

ANTHROPOLOGY

Kenneth Robinson

- *Archeological Survey, Hickory Creek Sewer Pipeline, Cleveland County, NC*, Odom and Associates, $5,501.02
- *Challenge Cost Share Agreement*, USDA, $16,598

Ellen Miller, *Adaptive Diversity Among the Earliest Known Old World Monkeys*, Leakey Foundation, $17,675

BIOLOGY

Gloria Muday, *Regulation of Auxin Transport by Phosphorylation and Flavonoids during Gravitropism in Arabidopsis*, NASA, $99,683

CHEMISTRY

Rebecca Alexander, *Dissecting Protein and Nucleic Acid Contributions to Efficient tRNA Aminoacylation*, National Foundation for Cancer Research, $50,000

Bernard Brown, *Structural Investigation of Archaeal Ribosomal RNA Modification Systems*, American Chemical Society, $20,000

Melissa Doub, North Carolina Society of Research Administrators (NCSRA) travel award to attend the National Council of University Research Administrators (NCURA) meeting in March 2004

S. Bruce King, *Nitric Oxide Producing Reactions of Hydroxyurea*, NIH, $274,882

Richard Manderville, *Fetal Exposure to Ochratoxin A: A Murine Model for Testicular Cancer*, Lance Armstrong Foundation, $18,875

COMMUNICATION

Steven Giles, *Promoting Fidelity Using Remote and On-Site Support*, NIH, $27,589

Ananda Mitra, *Alcohol-Related Problems Among College Students*, NIH, $25,188

COMPUTER SCIENCE

Jennifer Burg and Yue-Ling Wong, *Integrated Digital Media Curriculum*, NSF, $287,280

DIVISION OF STUDENT LIFE

Harold R. Holmes, *US-Germany International Education Administrators Program*, German Fulbright Commission, Berlin, Germany

HEALTH AND EXERCISE SCIENCE

Shannon Bozoian Mihalko, *Recovery Strategies Following Breast Cancer Treatment*, US Army, $210,613

W. Jack Rejeski, *Seniors Assembled for Aging Research on Independence (SAFARI)*, NIH, $83,304

Paul Ribisl, *Physical Exercise to Prevent Disability, Pilot Study (LIFE)*, NIH, $136,097

HISTORY

William K. Meyers, *Discourse of the Voiceless: the* Corrido *as an Expression of Consciouness and Culture*, Fulbright Scholar Program

PHYSICS

David Carroll, *Nanocomposite Technology in OLED Applications*, US Army, $138,533

Richard Czerw, *FM Nanoscale Intralaminar Reinforcement STTR*, AFOSR, $31,000

RELIGION

Reda Shafeak Ghazy Bedeir, *A Sociolinguistic Approach to Arab/American Cultural Dialogue*, Visiting Fulbright Scholar from Al-Azhar University, Daqahliya, Egypt

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