Funding Opportunities for Research in Bilingualism: Information from the National Institutes of Health

Peggy McCardle[1]
National Institute of Child Health and Human Development[2]

1. NIH funds language-oriented research

For those seeking funding for research in various aspects of psycholinguistics and bilingualism, including language development, language disorders, language learning and cognition, as well as reading and bilingual language development, there are actually five possible institutes at the US National Institutes of Health where funds may be available. The National Institutes of Health is the largest funder of biomedical research in the world, and comprises 27 institutes and centers, 24 of which directly fund extramural research projects. Biomedical research clearly includes research in the behavioral sciences – including language! The five with particular interest in the various aspects of language are the National Institute on Aging, the National Institute of Child Health and Human Development (NICHD), the National Institute on Deafness and Other Communication Disorders, the National Institute of Mental Health, and the National Institute of Neurological Diseases and Stroke. Information on each of these institutes can be found on the worldwide web at http://www.nih.gov/icd. If you are interested in applying for research grants from any of these funders, it is strongly recommended that you contact the individual responsible for the language research program in that institute prior to applying. The program officials can help you decide whether their program or some other might be the appropriate potential funder for the research you want to propose, what type of grant to apply for, and how best to construct your application. The process can be confusing, despite a large amount of information that is available on each institute's web site as well as the general Grants web site (http://www.nih.gov/Grants).

The NICHD has a particular interest in bilingual language development and bilingual reading. The program on Language, Bilingualism, and Biliteracy Development and Disorders within the Child Development and Behavior Branch (http://www.nichd.nih.gov/crmc/cdb/cdb.htm) was established approximately five years ago, and began funding with a major solicitation for research on the Development of English Literacy in Spanish Speaking Children (RFA HD-99-012; http://grants1.nih.gov/grants/guide/rfa-files/RFA-HD-99-012.html). While this solicitation is no longer active, it contains a great deal of still-relevant information, and the program encourages investigator-initiated applications on this topic and more broadly on reading development in English in non-native speakers (English-language learners) regardless of language background. This initiative, co-sponsored by the US Department of Education, is funding eight grants containing at least 14 projects, and represents a five year (2000-2004) federal investment of over $32,000,000. Both agencies continue to fund research in this area, and NICHD also has a particular interest in funding additional research in the basic area of bilingual language development in children.

[1] Contact for correspondence: Peggy McCardle, PM43Q@nih.gov
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2. Basic information on the application process

2.1 How the NIH notifies researchers of research opportunities – The NIH Guide.

NIH announces research solicitations and publishes policy notices and information in the electronic publication, *The NIH Guide to Grants and Contracts*, at http://grants1.nih.gov/grants/guide/index.html. There are two common types of research announcements: the RFA and the PA. An RFA, or Request for Applications, is a solicitation. The particular institute(s) sets aside funds and requests applications on a specific receipt date, usually at least three months from the date the publication appears. Then a group of applications are funded at the same time. An RFA is usually used to "jump start" research in a new or under-researched area, but the research is continuously built through additional investigator-initiated applications. Thus when a researcher sees an RFA but the deadline is past, it is not too late. A past RFA should serve to remind researchers that that institute or group of institutes is currently seeking to fund research in that area; contact the person(s) listed in the RFA and consider applying with an investigator-initiated (unsolicited) application. Another way that NIH encourages research in particular areas is the PA, or Program Announcement. A PA is similar to an RFA but does not carry either a set-aside pool of funds or a special receipt date; applicants can apply three times a year during the regular NIH investigator-initiated application deadlines, unless otherwise noted in the PA.

2.2 Where to find the forms

Given that the usual way for researchers to apply for funding from the NIH is via the investigator-initiated route, you need to know a few basic things about how to do this. The forms are available on the web (and only there). You can find PHS 398 forms and information under the "Most Requested" topic at http://grants1.nih.gov/grants/oer.htm. It's not an easy form, so be sure to read the instructions carefully. The form gives you guidance as to what parts should be in your proposal (the research part of the application) and approximately how many pages to spend on each. Be sure to pay close attention to the technical things, like page limits and font size, as errors on these can get your application sent back to you without being reviewed! You should consult your office of sponsored programs or office of sponsored research (your institution's grants office) for help on things like budget and human subjects/ institutional review board (IRB) issues. But you can and should contact a program official from the institute you consider most likely to fund your research; emails can be found on individual institute web pages. Your program official's job is to answer your questions and coach you through the application process.

2.3 How to decide what type of grant to apply for

There are many different types of grants at the NIH. Which one you apply for depends not only on the size and scope of the research you want to do, but also on things like where you are in your academic and research career, how much preliminary data you have, and what your ultimate goal is. There are several grant types, called "mechanisms" by the NIH folks. An easy mnemonic is this: R mechanisms are for "research," K is for "career," and F is for "fellowships." The following is a very quick overview of these categories. For more information on these and other types of grants, consult the NIH Grants Page on the web (http://grants1.nih.gov/grants/oer.htm) and the individual institute home pages (http://www.nih.gov/icd/).

Research Mechanisms: There are several types of research grants. For example, if you have outlined a plan of research that will take you four years, cost you about $275,000 per year, and you have a fair amount of preliminary data, then you would probably apply for a research project grant – an R01. If, on the other hand you have piloted the tasks but have not gathered enough preliminary data to really show that this idea merits that kind of time and cost, and the project is exploratory or you are entering a new area of research, then a smaller grant (an R03 or an R21) might be more appropriate. If you are interested in producing and testing a new product which you would like to then take to market, e.g. a new test, a training video, a CD-ROM instructional package, then a small business grant might be ideal. There are two types of small business grants: the Small Business Innovation Research (SBIR) grant is for small for-profit businesses (500-employees or fewer) where the proposed principal investigator is employed by that business more than half-time; if the proposed principal investigator is

employed by a university but collaborating with the small business, then the Small Business Technology Transfer (STTR) grant would be more appropriate.

Career/ K awards: There are many different K awards at the NIH, so the safest starting point is to go to the K-award Kiosk (http://grants1.nih.gov/training/careerdevelopmentawards.htm) and use the Career Award Wizard to figure out if you are eligible for one. These awards offer salary support to help researchers have the time to develop an independent research career.

Fellowships: If you are a doctoral student seeking support, you can apply for a predoctoral fellowship (F31) from many but not all institutes at the NIH, so be sure to check with the institute of interest in advance. If you are a new researcher who has just completed your doctorate, you might consider these smaller grant types or a postdoctoral fellowship (F32); the postdoctoral fellowship is a different application form and requires that you have a sponsor already identified who will help write the application. Fellowships do NOT use the PHS 398 form, but the NRSA form PHS 416 (http://grants1.nih.gov/training/extramural.htm).

3 How to write a good application

Any good grant application begins with a great idea, something you are excited about and committed to doing. Then you must of course be familiar with the literature, and review it thoroughly (but succinctly, remember those page limitations!). Give a clear statement of your research question or hypothesis, and a few specific aims through which you will address that question or hypothesis. Then those specific aims should be the skeleton on which you build your entire proposal. Your review of the literature should help provide the background and rationale for why the topic is important – it's significance. Be sure to give both sides of issues and to include the literature on all disciplines involved. One frequent and fairly damning comment reviewers make is "overly selective review of the literature;" don't let it be said of yours! Your methods and approach should explain how you will carry out your research to address those specific aims, and your analysis plan should indicate exactly how you will analyze and interpret the data to address those aims. Detail is crucially important. The other damning comment made by reviewers all too often is "underspecified" or "lacking in detail." Your proposal should be a protocol for replication of your study – which is why the NIH holds research proposals, whether funded or not, as confidential information. You have 25 pages, single spaced, to thoroughly and completely describe exactly what you will do, why, how you will do it, what you expect to find and what that will mean, and what you will do if you don't find what you expect. Leaving the door open for possible alternative explanations is important. Equally important is a clear theoretical framework for your hypothesis and aims. One of my favorite cartoons shows a professor pointing to a complex formula on a chalkboard – there is a black square in the center to which he is pointing. The text inside the box reads "Then a miracle happens." The caption says "Perhaps you should be a little more explicit here in step 2." So be explicit.

4. What happens after you apply?

If you are submitting an investigator-initiated application, you can send it in on any one of three dates each year – February, June or October first. Then it will be peer-reviewed about 4-5 months later, by a panel of scientists. The panels are listed on the web and a readable overview of the NIH peer review process can be found at http://www.csr.nih.gov/review/peerrev.htm. After the review, you will receive a score and a percentile. NIH scores range from 100 (best possible) to 500, although the lower half of applications are usually no longer scored, so you will likely get a score between 100-300 or an "unscored" designation. Many researchers do not get scored or funded the first time they submit. Every grant is reviewed and the principal investigator receives a summary statement which contains the written critiques of the reviewers. If you are not funded, consult your program official (whose name and email will be on your summary statement) and discuss resubmission. Resubmission dates are one month later than each submission date – that is, you can send in a revised application on March, July or November first. Each revised application must include a 3-page introduction in which you describe how you have revised to address the critiques in the summary statement. You may revise an application only twice, so discussion with your program official is very important.

What constitutes a fundable score varies for each review cycle and may vary for each institute. Therefore, again, talking with your program official and awaiting the official notification form the Grants Manger at the funding institute are very important. Funding is determined at the second level of review, the national advisory council or board review, which takes place about two or three months after the review, or about six or seven months after your submission. If you are funded, you must provide proof of approval of your use of human subjects by your Institutional Review Board and clear up any concerns noted by the peer review panel regarding human subjects or the inclusion of women, minorities and children in the research prior to actually receiving funds. Each year you must provide your program official with a progress report to receive the next year's continuation funds.

5. The final word

Getting a grant is not easy. However, if you love doing research you will need funds… and the one guarantee we can give you is summed up in my favorite Wayne Gretsky quote: "You miss every shot you don't take."

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