An optimist’s approach to submitting grant proposals

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Organized by Natasha Tokowicz, Laurie Feldman, & Judy Kroll
“Constructing a Successful Grant Proposal”
July 22, 2015
My research topic: How does/did human speech production emerge?

Daylong naturalistic audio recording and automated analysis:

Computational modeling of vocal learning:

- Reservoir
- Agonist motor neurons
- Antagonist motor neurons
- Vocal tract simulation and sound synthesis
- Auditory salience estimation and reward determination
Title: “Infant Vocalization as Foraging for Caregiver Responses”

Co-PIs: Ajay Gopinathan (Physics) and Chris Kello (CogSci)

Funding source: NSF, Developmental and Learning Sciences, to be co-funded by from Robust Intelligence

Status: Recommended for funding

The main idea:

- When infants are babbling, they might be foraging in an abstract acoustic/motor space, something like animals foraging in their spatial environments.

- We will collect daylong audio recordings and create methods to analyze them from this perspective.

- We’ll also create computational models that treat the infants and caregivers as foraging agents.
Pre-preparation

• In my first year on the job, I attended a campus grant-writing workshop and started thinking about submitting to NSF and NIH.

• Developed a habit of working on manuscripts or proposals for 2 hours each morning.
How this proposal was born

• I’d been thinking some time about infant vocalization as an exploratory process, and about how it could fit with some “cognitive foraging” work my colleague, Chris Kello, was doing.

• I was casually introduced (at Starbucks, of all places) to a faculty member in Physics. He mentioned he does work on foraging agents so I mentioned I’d been thinking about infant vocalization. He suggested we meet and to talk about potential collaboration.

• By the end of this meeting, we decided we should try to write an NSF proposal.
First steps

• Wrote a 1-page summary and send to program officer. Asked if it was suitable for the program and if she had any feedback (in this case, she did, in other cases they might not).

• Worked on turning an exciting idea into a concrete plan.

• Started creating pilot data/analyses/figures.

• Started outlining and drafting the toughest sections of the proposal.

• Asked friends if they were willing to share examples of successful grant proposals (I’d also seen a few examples of proposals from serving as an external reviewer for the program to which we were submitting).
Next steps

• Announced to campus Research Development Services that we were planning to submit. We needed this so they help us with the budget, but it also created a strong push to meet the next deadline.

• Learned to modify the budget spreadsheet (I tried to keep the budget around average for the program).

• Invited consultants.

• Worked on writing the project description. Tips:
  • Include some technical detail, e.g. equations, but make sure to also explain each one in words so anyone can get the gist.
  • Plan to share the data/code with other researchers.
  • Broader impacts: Include data on student research assistant and participant demographics (gender, race/ethnicity, first-generation status, disabilities)—good idea to start keeping records on this from the beginning.
  • Follow all of Gary and Betty’s advice!
The week of the deadline

• Enter drafts early and check everything before sponsored research office hits submit. Do not rely on staff to do all the checking.

• Continue working on the project description and summary
  • incorporating feedback from Co-PIs and consultants.

• Final read-through for typos, etc.

• Celebrate the accomplishment of having submitted.
Our submission was rejected. What did we do then?

• Read all the reviews. Chat with Co-PIs and consultants about them. In our case, the reviews were pretty good so it was encouraging not painful.

• Asked the program officer if we could talk on the phone about the proposal. Asked lots of questions about how to address various reviews. Invaluable!

• Took the opportunity to strengthen the proposal with additional pilot data/analyses, more well thought through data analysis and modeling plans, etc.
  • Organized an interdisciplinary half-day campus workshop on “foraging”.
  • Talked in depth with colleagues about the project and learned more about their related work.
  • It was really fun, and gave us ideas for how to strengthen the project.

• I made sure we did something to address every single reviewer critique (and there were 10 meaty reviews!).

• This version ended up being recommended!
Reasons for optimism

• In the process of applying for grants and fellowships, you will be forced to make a research plan that is both solid and ground-breaking.

• In cases where you get reviews (like at NSF) you will get feedback on those ideas to make your research plan stronger on the front end.

• Writing a grant is a different process from writing a journal article—you get to be more optimistic and don’t have to actually deal with messy data (just to have a plan for how to deal with potentially messy data). It can be fun, or at least a change of pace!

• You may get some credit with your senior colleagues just for submitting.
More reasons for optimism

• You may forge new friendships and collaborations with your Co-PIs and consultants.

• While there are stories of folks having to try many times, there are also stories of folks being successful on the first or second try.

• Demographics (junior / female / underrepresented minority / first generation / underrepresented university or geographic region) are often taken into account, helping level the playing field.