Revising and Resubmitting Unsuccessful Proposals

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Learning Objectives

- Understand multiple and complex reasons for proposal rejections
- Understand agency review processes
- Determine feasibility of resubmission
- Determine likelihood of future success
- Apply specific strategies to revise proposals based on reasons for rejection
- Gain skill in interpreting agency reviews
Rejection Facts of Life

- Most proposals are rejected: 75-90%
- Very few first applications are funded
- Re-submissions do succeed:
  - NIH report in 2006:
    - 8% for first-timers, 28% for second-timers, 47% for third-timers
    - NSF does not reveal statistics but anecdotally, scores improve
- Rejections offer a learning opportunity
- Reviewers are not always wrong
- The peer review system usually works well as intended
- Grant success is a life-long process
NSF Review Process

- Up to five/six individual reviewers
- Applicant can suggest reviewers and non-reviewers (with reasons)
- Reviewers not known to applicant
- Selected by NSF program officer
- Reviewers may not be the same for resubmissions
- Resubmissions not labeled as such
- No opportunity to identify changes in resubmission
- Applicant receives all individual reviews (scored from excellent to poor) plus program officer summary
- Up to six months for notification
NIH Review Process

- Published, established review groups
- Managed by permanent NIH employee in central NIH division
- Review division separate from funding division
- Reviewers serve three-year terms
- Proposals read by 3-5 individuals
- One reviewer serves as lead discussant but...
- Whole review group discusses proposals
NIH Review Process, continued

- New scoring system as of January 2010:
  - Applicant receives “summary statement” plus several numerical scores:
    - Total possible score of 25 (old range was 500)
    - Percentile score
    - Relevance score

- One resubmission allowed
- Additional space to explain revisions
- Same panel will re-review, with some turnover
DED Review Process

- Three reviewers (non-federal)
- Each reads up to 10 proposals
- Selected by DED program officers
- Total possible score of 100 points
  - Each required section has specific point value
  - Each reviewer separately scores each proposal read
  - Program officer conducts panel discussion to reconcile outlying scores
  - Each reviewer must meet standard of less than 10 points deviation in total score
Other Agencies’ Review Process

- EPA, USDA, DOE, DOD
  - May or may not use external reviewers
  - May or may not provide written reviews
  - May or may not have transparent review process
  - May or may not have point system
  - May or may not relate page limits to point system
  - May or may not have resubmission policy
Making the Decision to Revise

- Analyze the reviews
  - Identify types of problems
  - Determine consistency of comments
- Get another objective expert opinion
- Contact the program officer
- Re-assess time and P.I. commitment
- Decide if the project is still relevant and important
- If so, go for it! If not, move on!
Why proposals are rejected

- Administrative/regulatory reasons
  - Agency guidelines
  - Proposal format
  - Program restrictions
  - Deadlines
  - Ineligibility
    - PI
    - Institution
Remedies: Administrative

- Review RFP carefully
- Scrupulously follow the prescribed format
  - Font, page limits, attachments, margins
- Determine if restrictions remain
- Apply well before deadline day
- Find new or co-PI
- Consider changing applicant institution
  - Become subcontractor/partner
Why proposals are rejected: PI

- Principal investigator(s)
  - Inadequate experience – research or management
  - Little evidence of experience with grants
  - Unclear description of work roles/tasks
  - Publications inadequate or not relevant to project
  - Staff insufficient or untrained
Remedies: PI

- Inexperience
  - Add senior co-PIs or consultants
    - Mentor
    - Colleague
    - Subcontract
  - Provide management plan and/or organization chart
  - Include time and task chart
  - Write job descriptions of staff
Why proposals are rejected: Politics

- Political reasons
  - Geographic distribution
  - Congressional influence/interference
  - Set-asides, pork-barrel
  - Problem is too localized
  - Internal competition
    - UW-Madison vs. UW-Milwaukee
    - Ohio State vs. U-Akron
Remedies: Politics

- Secure university commitment to project
  - Keep government relations staff informed
- Set problem in national context
  - Use proposal as case study
  - Show wider/larger application
- If you can’t beat them, join them
  - Include colleagues from Big-Time U
Why proposals are rejected: Intellectual-Scientific-Academic

- Intellectual/scientific/academic reasons
  - Importance of topic to discipline
  - Currency or cutting-edge research
  - Focus: too narrow or too broad
  - Unpopular or uncommon methodology
  - Inadequate literature search
  - Unclear, disorganized presentation with gaps in reasoning and logic
Remedies

- Strong introduction: why is project important
- Comprehensive literature review
- Present project in intellectual context
- Explain method selected and why
- Explain why other methods not used
- Use strong format to show progress of ideas
- Change project scope
  - Add co-investigators if too broad
  - Decrease project goals and provide more focus
  - Add more project time
Why proposals are rejected: Project Design

- Project design:
  - Not enough evidence to support the need
  - Aims are not of sufficient importance
  - Project may not produce any improvement
  - Problem is much bigger than the PI realizes
  - Idea is too ambitious
  - Goals and objectives are unreachable:
    - Too many, too broad, too vague
Remedies: Project Design

- Detailed needs analysis/justification
- Specific background data—own and others
- Measurable objectives/outcomes
- Limited number of aims (3-5 maximum)
- Propose pilot to demonstrate likelihood
- If none of the above are appropriate, look for another sponsor/program
Why proposals are rejected: Budget

- Budget reasons: agency
  - Request too high for program
  - Agency already committed to continuations
  - Fiscal year cycle

- Budget reasons: applicant
  - Unconvincing or confusing budget narrative
  - Inappropriate/unallowable requests
  - Bad arithmetic, wrong F&A and benefit rates
  - Vague travel, equipment plans
  - Too many staff requested
  - Consultants not linked to proposal activities
Remedies: Budget

- Lower the annual and overall request
- Remove some budget categories
- Resubmit in first cycle of fiscal year
- Write a detailed, well-described narrative linking budget requests to project narrative
- Provide quotes and detailed information especially for equipment, trips, consultants
- Add salary schedules, job descriptions, benefit tables.
Why proposals are rejected: Institution

- Facilities, space, equipment, library, etc.
- Financial resources/cost-sharing
- Other research support:
  - Graduate students
  - Grant infrastructure
- Legal issues:
  - Institution being audited or under sanctions
  - Inadequate compliance infrastructure/history
Remedies: Institution

- Provide more detail on facilities—floor plans, lists of equipment, other resources
- Find a partner institution/lab/department
- Resolve compliance issues
- Describe grant management system
- Provide letters of support/commitment
- Specifically identify cost-sharing
  - In-kind
  - Cash
  - Other sources of funding
Why proposals are rejected: Presentation and Format

- Presentation
  - Writing is too vague to the reviewers
  - Long paragraphs, long sentences, long words
  - Careless proofreading: grammar, spelling, typos, punctuation
  - Masses of print without pictures or format
  - Poor quality or mislabeling of images
  - Inaccurate word choices
Remedies: Presentation, Format

- Use clear, specific format strategies:
  - Do careful and multiple proofreading
  - Use external editor
  - Provide headings and sub-headings
  - Use frequent and relevant illustrations
  - Write short paragraphs
  - Write short sentences:
    - 20-word rule
    - Long sentence/short word rule
Case Study

- National Science Foundation program requirements:
  - implementing strategies that will lead to an increase in the number of students (U.S. citizens or permanent residents)
  - obtaining STEM degrees at institutions with baccalaureate degree programs
  - the total graduation numbers of such students at the institution(s)
  - must include specific numerical targets for these increases
Case study, continued

- If a project focuses efforts on only a subset of STEM fields, increases in those fields must not be at the expense of degrees in other STEM fields.
- May focus on the retention and/or recruitment of undergraduate students into STEM fields.
- Outreach efforts are appropriate only if the efforts can be expected to result in additional STEM majors and graduates at the submitting institution(s) within the grant period.
- All Type 1 projects are considered to be institutional efforts.
Case Study Discussion/Decision

- Revise and resubmit?
- What to change?
- What to keep?
- How to address reviewers’ concerns?
  - Explicitly?
  - Implicitly?
  - Not at all?
- How to convince next reviewers to fund?
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CASE STUDY: Revising and Resubmitting Rejected Proposals

NSF Program: Science, Technology, Engineering and Mathematics Talent Expansion Program (STEP)
Proposal Title: Creating Undergraduate Honors Courses in Mechanics through the Incorporation of Numerical Computation

Panel Summary #1 Panel Summary

Intellectual Merit: This proposal does not fit the STEP competition parameters well. It is better suited (with considerable modification) to the CCLI or other curriculum-development competitions. The purpose of the STEP program is to increase enrollments and graduates from STEM areas. This proposal will only reach a small number of students through an Honors program. The panel did not feel a case was made that an Honor program would succeed in increasing enrollments or graduation rates. In fact, the proposal did not include information about graduation rates which is required in the RFP.

The panel was positive about the concept of adding visualization components to the engineering courses and we liked the idea of training TAs because this will help improve overall instruction. We also compliment the PIs on adding real-world problems to the engineering curriculum. Finally, we believe the sequencing of courses in Mechanics is wise; however, we also believe this is a relatively small area of study.

We had many negative comments and you can see that our ratings reflect this. The panel suggests the following as constructive criticism (listed as criticism and then possible solution):

1. too few students impacted - Because the STEP program is intended to increase the number of students and graduates from STEM areas, we suggest that you consider developing stronger classes throughout the curriculum rather than focusing on an Honors program.
2. little focus on under represented groups and diversity - Many programs have extensive outreach to attract minorities, females, etc. We encourage you to develop a stronger recruitment program. The Milwaukee area has a significant underserved population base and you should reach out to encourage more students from this demographic.
3. stipends could send the wrong message - We applaud your plan to provide stipends to students with financial need; however, you only provide the stipends upon success in courses. Therefore, the stipends are not needs-based and are instead a reward for accomplishment. The panel thought the stipends would help recruit more students if they were needs-based.
4. TA training is overfunded - the panel believed that additional TA training will improve instruction and is a good choice. But, we also felt that too much emphasis and funding was placed on this program component. It seemed that program funds were directed toward building university salary and infrastructure rather than helping students directly. This could be addressed by creating a more balanced budget plan that is more student centered.

Broader Impacts: With only 80 students affected by this proposal, there are few broad impacts. Please see the comments above on potential ways to improve in this area.

Panel Summary: Obviously, the panel did not review this proposal positively. The fact that we were unanimous in our opinion that the proposal was not suited for the STEP competition leads us to suggest you reconsider the proposal for other programs. We believe there are good ideas included in your proposal and that with considerable effort it could be developed into a stronger idea. If you want to resubmit to STEP, please review the RFP closely and address the specific details for this program. The panel wishes to leave the PIs with the idea that despite the negative reviews, the ideas have merit and might be better directed to other programs.

Review #1 Rating: Poor

What is the intellectual merit of the proposed activity?
1. How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? Limited.
2. How well-qualified is the proposer (individual or team) to conduct the project? PI has one previous CSEMS grant. Relatively inexperienced in grant administration.
3. To what extent does the proposed activity suggest and explore creative and original concepts? Limited.
4. How well-conceived and organized is the proposed activity? The need is identified, however not well justified. Activity is organized.
5. Is there sufficient access to the necessary resources? Yes.

What are the broader impacts of the proposed activity?
1. How well does the activity advance discovery and understanding while promoting teaching, training, and learning? Not applicable.
2. How well does the proposed activity broaden the participation of underrepresented groups (such as gender, ethnicity, disability, geography)? No significant focus or justification.
3. To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Not applicable.
4. Will the results be disseminated broadly to enhance scientific and technological understanding? Yes. Through normal means.
5. What may be the benefits of the proposed activity to society? Improved quality of mechanics courses.

Summary Statement
From the RFP, Type 1 proposals are to be aimed at implementing strategies that will lead to an increase in the number of students obtaining STEM degrees. The potential for this project to do so is limited at best. Also from the RFP, the outcomes expected of funded Type 1 STEP projects include an evaluation, using the benchmarks defined in the proposal, that informs the institution and others of the progress and findings of the grant project. This proposal identifies benchmarks, but not reasonable targets. Does not convincingly demonstrate informing of the institution.

This evaluator is not convinced this program will attract 80 additional students as predicted. Even if this were true, $1.3 million to increase STEM graduates by only 80 students is wasteful. The improvement of mechanics courses through modeling, simulation, and visualization is an excellent idea and is needed. Having honors mechanics courses is admirable. This is not a convincing argument however which would lead this evaluator to believe significant STEM enrollment increases will result.

Review #2 Rating: Fair
What is the intellectual merit of the proposed activity?
This project has three principal objectives: to create an Honors sequence in the undergraduate mechanics courses of Statics, Dynamics, and Strength of Materials; to develop enhanced content of the honors Statics, Dynamics, and Strength of Materials through the development of new course materials and activities that introduce the use of computational modeling, numerical simulation, and visualization, using modern engineering software, as a problem solving technique; to specially prepare mechanics teaching assistants by involving them in the development of the new course materials and by training them to effectively interact with students and to field student questions. The PI's are quite technically qualified to achieve stated objectives.

What are the broader impacts of the proposed activity?
By strategically incorporating the use of computational modeling, numerical simulation, and visualization into the courses of Statics, Dynamics, and Strength of Materials, students will be able to solve a host of problems that are prohibitive under the current paradigm of restricting problems to idealized cases that are amenable to hand calculation. With the use of computing, students will be able to approach basic design problems that give a realistic flavor of true engineering practice. At last, students will be able to answer their questions of "why are we doing this?", and "what's the practical application?" The enthusiasm and excitement generated by engaging in realistic engineering problems at an early stage of the curriculum has the potential to stem losses of retention.
that occur due to lack of interest. The materials and methods that they create here are easily transferable to other institutions, and thus have the potential to positively impact national goals to increase retention and graduation of engineers in this small focused area.

Summary Statement
This proposal will serve the fundamental goal to increase the number of students who advance to majors in, and ultimately graduate from, the College of Engineering and Applied Science (CEAS) at the University of Wisconsin-Milwaukee (UWM). This is an extremely narrowly focused curriculum development project intended for the most dedicated students pursuing a degree in (I assume) mechanical engineering. The expectation is by enhancing sophomore-level static, dynamics, and strength of materials course, a broader population of engineering students will benefit. A stretch since students not interested in mechanics who take these course do so reluctantly because they are required for their major.

Strengths:
The quest to create honor sequence in mechanics is commendable for those interested in this narrow engineering track. Well defined development and implementation plans. Looks like a good deal of thought and planning has gone into this.

Concerns:
Potentially very small number of students impacted. Degree to which underrepresented minorities and women participate and are impacted. Aside from providing money to students, training of teaching assistants in the newly developed courses and tracks is mostly better quality labor for the few instructors. Does not seem appropriate for STEP; more suitable for curriculum development funded by specific engineering discipline.

Review #3 Rating: Poor
What is the intellectual merit of the proposed activity?
The PIs propose to develop an Honors program in engineering and populate the classes with better technology and specially trained teaching assistants. OK, fine - that is real nice to do. But, where is the evidence that an Honors program will recruit or retain more students? The PIs present no such evidence, therefore I do not feel this proposal speaks to the STEP guidelines well (it seems more like a curriculum development proposal more suited for the CCLI program). From experience and some literature review, it appears to me that many students leave engineering programs because the courses are difficult - not too easy. Thus, creating an Honors program is likely to only succeed with the best students who are likely to remain engineering majors anyway. I do not see where this program will recruit and retain more students.

What are the broader impacts of the proposed activity?
The Honors courses proposed might become good models for other schools to utilize. Other than this, the student population base in engineering served by this proposal would be small and not have much of a broader impact at all.

Summary Statement
I do not believe this proposal should move forward for funding consideration. I think the PIs missed the point of the STEP program entirely.

Review #4 Rating: Fair
What is the intellectual merit of the proposed activity?
They hope to create an Honors sequence in undergraduate mechanics courses. Part of this will entail developing new course materials and activities, incorporating numerical simulation, computational modeling, and
visualization, using software. They hope to develop a plan to prepare mechanics teaching assistants. Smaller class sizes provide an opportunity for high quality teaching.

What are the broader impacts of the proposed activity?
This proposal offers students a reason for why they study mechanics, as well as providing practical applications, to prepare them for solving problems. There is a potential to demonstrate that incorporating computational modeling at an early stage lead to increased student interest, increasing retention and graduation rates. An outcome of the project will be to provide substance for new textbooks.

Summary Statement
I think too much emphasis is being placed on training teaching assistants. The TAs might become responsible for getting the message across. Just because class sizes would be limited to 20, that would require more TAs, but why not hire more PhDs? The proposal makes me think that other schools are limited by the "current paradigm" that most problems are restricted to hand calculation. What are the math courses doing? They did not address the current graduation rate. Many programs incorporate technology now; what makes their proposal unique?

Review #5 Rating: Poor

What is the intellectual merit of the proposed activity?
Having an honors sequence will not entice students to go into STEM fields who otherwise wouldn't. Honors students typically choose major first, then are "into it" so they don't need "incentive" to do honors work, other than the challenge, recognition and intellectual endeavor. Honors work can encourage students to pursue graduate study. Allowing students to take courses out of sequence only to increase diversity sets up underrepresented students for failure. Statistics given are sometimes not comparing the same profile of student, so not really relevant comparisons. Good that sequence engages students in their sophomore year, when interest often lags.

Review #6 Rating: Fair

What is the intellectual merit of the proposed activity?
The strengths of this proposal begin with an innovative project designed to create a mechanical engineering curriculum for honors students that incorporates more open-ended, real-world case studies. This model for including the very activity that excites STEM professionals about their work, solving open-ended problems, has the potential for being a highly-effective motivational tool for helping students preserver through their coursework challenges, and retain their declaration as STEM majors. Program activities include often overlooked details such as special training for the teaching assistants involved in these courses.

Weaknesses of this program include the potential of these activities for increasing STEM majors. If a student self-selects to participate in an honors program, this student is very likely to successfully complete a major in a STEM discipline independent of the proposed activities. The STEP program is designed to increase the overall number of STEM majors, and by focusing program efforts on the high-achieving students only, there is a low probability that this will increase the overall number of STEM majors. Providing stipends to offset financial hardships is not a sustainable post-award activity, and because the award amount is conditional, the stipend may encourage academic dishonestly. A stronger proposal would be prepared by finding alternative methods to offset the cost of education.
What are the broader impacts of the proposed activity?

Few efforts to increase STEM majors are focused on high-achieving students. If successful, the wide dissemination of the results of this project has the potential to impact numerous campuses around the nation.