

**2008 IGERT Project Meeting**  
**Session VI: Technical Session**  
**Human Science & Human Impact of Technology**

**PI Responses:**

- **How to ensure IGERTs are leading the way on transformative interdisciplinary research?**
  - NSF needs to provide continued, substantive support across their portfolios toward truly interdisciplinary study: support of research, support of students, support of faculty. When we train interdisciplinary scientists, the funding opportunities available to those new scientists should be welcoming and abundant.
  - Specific ideas:
    - Make IGERTs truly renewable. If programs are successful, if training paradigms have been proven to build strong scientists, we should be able to build upon our strength rather than artificially changing course from our established successes. Changing course loses momentum, dismantles exciting and successful projects, and disrupts important faculty and trainee communities.
    - The characterization of IGERT grants as “seed money” that will be replaced or continued with institutional funding clashes with the financial reality of academia.
    - A single five-year grant is too short to develop and produce curricula and trainees and to induce truly meaningful institutional change. We should have ability to (a) stretch funds into additional years and to (b) apply for funded extensions and renewals of flexible duration.
- **How to optimally integrate interdisciplinary research and education?**
  - The research environment integrates across undergraduate, graduate, and postdoctoral contributions. The best graduate student training fully embraces this environment, including graduate students mentoring undergraduates and receiving mentoring from post-docs. NSF should change its rules to not only

allow but strongly facilitate undergraduate (e.g. REU) funding directly connected to IGERTs.

- IGERT programs would benefit from postdoctoral participation and therefore be allowed to support postdoctoral fellows.
  
- **How has globalization of interdisciplinary research in your topic area had an impact on graduate education and research?**
  - Science has been globalized for a long period of time; the IGERT program has made some global opportunities more available for our trainees and faculty and enabled collaborative international technological development. Visa (immigration) troubles, however, make it difficult for everyone to travel (IGERT associates, reciprocal overseas partners) and throttles the development of nascent collaborations and opportunities.
  
- **What are the career opportunities for Trainees, and how are Trainees being prepared to be successful?**
  - Most of our trainees (in our areas) aspire to academic careers. IGERT meetings, especially the career panel this year, were strongly and overly negative toward academic career prospects. Especially negative were the sentiments that networking trumps achievement and that “big picture” self-promotion trumps detailed and careful study in science. We train our students, and advocate the IGERT program to shift focus toward, scientific excellence regardless of the job environment.
  - We also see up and coming interdisciplinary technological opportunities for jobs, such as brain-computer interfaces, language technologies, robotics, and data-mining.
  
- **What role does the interdisciplinary research in your topic area play in recruiting and retaining a diverse group of trainees? (Please think: Broadening participation)**
  - Some of us find it is a challenge to attract diverse students to seemingly risky interdisciplinary programs. Others have found success attracting students to programs of strong societal relevance.

- On the upside, we (interdisciplinary grad programs) are by far the coolest kids on the block and attractive to all.
- In our experience undergrad research opportunities are the best pipeline to our programs (NSF, give us money to build and foster strongly interdisciplinary undergrad research programs).
  
- **How can the IGERTs in this topic area collaborate or cooperate to further the goals of each IGERT?**
  - Carnegie Mellon recently hosted a brain-related inter-IGERT student research symposium; trainees found this very rewarding. Columbia organized a symposium on international development and globalization in which students from interdisciplinary training programs, including IGERTs, participated. CMU and Columbia will do this again; NSF can and should encourage across-IGERT-collaboration opportunities. A particular avenue to this collaboration could be organized around broader impacts and geographically based rather than scientifically topical. This would also enable coordinated, local diversity-oriented and K-12 outreach.
  
- **PLEASE feel free to add any other questions you wish and provide your input!**
  - Some of us would like to move the IGERT PI meeting to San Juan, PR. This will strongly impact diversity.

## **Trainee Responses:**

- **How to ensure IGERTs are leading the way on transformative interdisciplinary research?**
  - Graduate funding
  - Faculty collaboration/Institutional support
  - Student collaborative teams
  - Encouraging research universities to embrace interdisciplinary activities
  - Option to trade coursework for interdisciplinary seminars
  - Make sure institutions create appropriate coursework – i.e. projects, lab based courses
  
- **How to optimally integrate interdisciplinary research and education?**
  - Broaden perspective of our interdisciplinary research
  - Students networking across disciplines and producing papers
  - Communicating to faculty members the value of interdisciplinary research
  - NSF support for interdisciplinary publications
  
- **How has globalization of interdisciplinary research in your topic area had an impact on graduate education and research?**
  - Made international research opportunities available to trainees
  - Encourages undergraduates to be associated with multiple disciplines
  - Forced thoroughness in many different research methods
  
- **What are the career opportunities for Trainees, and how are Trainees being prepared to be successful?**
  - Better prepared for the job market upon graduation because we are versed and exposed in different methods
  - Learning effective communication across disciplines
  - Funding permits serious pursuance of non-myopic interdisciplinary research

- Private sector is open to interdisciplinary researchers
  - Option of having diverse portfolios
  - Opportunities at IGERT-like interdisciplinary programs in academia
  - Various tools and methods to market ourselves (BIG TOOLBOX)
- 
- **What role does the interdisciplinary research in your topic area play in recruiting and retaining a diverse group of trainees? (Please think: Broadening participation)**
    - Attracts a group of people that would not normally mix
    - Provides a home for people with diverse research interests and backgrounds
    - Allowing students to spend more time on research
    - Can be difficult for students to pass through the requirements of their particular department and the IGERT interdisciplinary program as well
    - Hard to balance coursework and research
- 
- **How can the IGERTs in this topic area collaborate or cooperate to further the goals of each IGERT?**
    - Introduce trainees to occupations in industry
    - Present our work to diverse audiences
    - Public information at the university level and beyond about the research IGERT is doing
    - Establish an IGERT alumni network resource for current and past trainees
- 
- **PLEASE feel free to add any other questions you wish and provide your input!**