



Abt Associates Inc.

Training the Next Generation of Researchers: A Follow-up Study of Students Supported by NSF's Integrative Graduate Education and Research Traineeships Program

Introduction

Since 1998, the National Science Foundation's (NSF) has supported interdisciplinary training of doctoral students across the nation through the Integrative Graduate Education and Research Traineeships (IGERT) Program. IGERT operates via grants to institutions that develop innovative, interdisciplinary doctoral training programs. Over 4,000 doctoral students have benefited from some IGERT support, and over 800 have earned doctoral degrees (in the program's first decade). This study brief summarizes a recent study conducted by Abt Associates Inc; the study describes degree completion and short-term professional outcomes of IGERT graduates, and compares outcomes of IGERT graduates to other STEM doctoral students.¹

Study Methods

The study surveyed the population of IGERT graduates as of Spring 2008 (N=869, 74% response rate) and also surveyed a comparison group of doctoral recipients from academic departments similar in academic quality that did not have an IGERT training program (N=827, 52% response rate).² These survey data were supplemented by two other data sources: extant data from all IGERT Principal Investigators and trainees about IGERT trainees' demographic characteristics and doctoral degree completion rates; and national data.³ Highlights from the study are summarized below.

Selected Findings

IGERT is Relevant

- IGERT-sponsored interdisciplinary training programs are in demand: high proportions of both IGERT and non-IGERT graduates reported that they were interested in interdisciplinary education when applying to graduate schools (85 and 75 percent, respectively).

IGERT Graduates Value Their Training

- IGERT trainees overwhelmingly described the experience as a positive influence on such outcomes as degree completion, finding employment, and preparation for the demands of the scientific workforce. The interdisciplinary nature of the IGERT training experience was consistently referenced as the most valuable and relevant aspect of graduate training for IGERT graduates' educational and career pursuits.

IGERT Graduates Complete Multidisciplinary Dissertations

- IGERT students follow through on their interdisciplinary interest when completing their dissertations: 75 percent of IGERT graduates report that they drew on at least two disciplines in their dissertation research, compared with 61 percent of non-IGERT graduates.

IGERT Graduates As Likely to Complete Degrees As Comparison Students – Yet in Less Time

- Students who receive IGERT traineeships are required to participate in multiple activities, ranging from additional courses, to seminars, discussion groups, laboratory rotations,

research projects, and to internships; many of these activities are *above and beyond* the requirements of students' home departments. Despite such additional requirements, IGERT graduates successfully earn PhD degrees at rates comparable to those reported in the Council of Graduate School's *PhD Completion Project*⁴ and further, complete their doctoral degrees nearly six months sooner than their non-IGERT counterparts, on average. IGERT graduates indicate that the unrestricted nature of IGERT funding means they have the flexibility to focus on their own research.

IGERT Graduates Obtain the Professional Positions They Choose

- IGERT graduates, and their comparison peers, reported that they were able to obtain jobs either before or upon graduation, and that they found the types of positions they were seeking: positions in academia, industry, or government. Evidence from this study indicates that IGERT graduates report no negative consequences in their job searches attributable to the interdisciplinary and non-traditional nature of the IGERT experience.
- In 2008-09, when this study surveyed IGERT graduates, they had completed between one and eight years of post-PhD employment either in the workforce (68 percent) or in a postdoctoral appointment (32 percent). Just over half were in college or university positions, including 24 percent in postdoctoral appointments and 27 percent in faculty positions. One-quarter of graduates were employed in industry or business, and the remainder were working in government or other private sector organizations.

IGERT Training a Positive Factor in Job Attainment

- 94 percent of IGERT graduates believe that the IGERT experience helped them find professional positions. They reported that the preparation and training received in IGERT programs gave them a competitive edge in the job market, and that they experienced less difficulty landing their first jobs than non-IGERT peers.

IGERT Provides Graduates with Needed Skills and Intellectual Breadth

- IGERT graduates continue to draw upon interdisciplinary networking and collaboration skills in their current professional roles.
 - They were more likely to report that their IGERT training had prepared them for interdisciplinary work than did their peers.
 - IGERT graduates regularly draw from two or more disciplines in their current work.
 - IGERT graduates report working on scientific/technical projects and/or teaching courses that require the *integration* of multiple disciplines more than their non-IGERT peers.

¹ The Final Study Report will be released in Summer 2010.

² Comparative analyses between IGERT and non-IGERT graduates only included a subsample of the population of IGERT graduates (N=396, 66% response rate). There were no observable differences between the IGERT Subsample and the full sample of all IGERT graduates.

³ Details on study design (sampling strategies, power calculations, and matching) are in the Final Study Report.

⁴ The Council of Graduate Schools (CGS) estimated that for a small sample of institutions, the 10-year completion rate for STEM doctoral students ranged from 55 to 64 percent, with moderate variation among STEM disciplines (CGS, 2007); the 10-year completion rate for IGERT graduates is 54%, also with moderate variation among STEM disciplines.