

Background

Data from the National Science Foundation’s (NSF), and the National Institutes of Health (NIH) indicate that **over \$1.6 billion of federal funding was spent on education and training in the biomedical sciences in 2009 alone.**

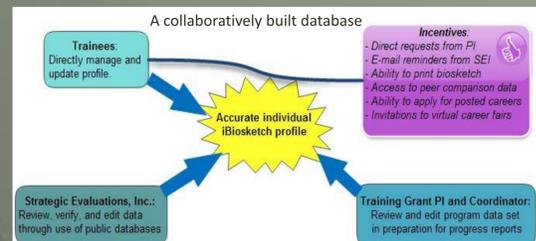
These data point to the significant amount of resources annually invested in training tomorrow’s scientists. However, evaluators have faced numerous difficulties examining the effectiveness and outcomes of these training programs because there is **currently no systematic way of collecting and housing data about the program participants.**

Strategic Evaluations, Inc. (SEI) developed in January 2009 a **centralized, password-protected electronic data collection system for tracking trainees** of biomedical research programs by collecting career outcome data. This system, called iBioSketch, aims **to improve the efficacy of program evaluations** and also increase the capacity for rigorous research across programs.

Education research has traditionally been considered less rigorous than other fields of research, in part because it has not produced the same kind of cumulative knowledge base that is available in other fields. In addition to emerging as a model for tracking trainees’ career progress, we expect that iBioSketch will **strengthen research conducted on the outcomes of biomedical training programs** by providing a method for collecting comparable data across programs and building a database to facilitate knowledge sharing.

What is iBioSketch?

The iBioSketch tool is a customizable web application that tracks career progress for undergraduates, graduate students, and postdoctoral fellows in the biomedical sciences. Its design is different from other data collection tools and strategies in that it allows multiple people to enter, review, verify, and edit trainee profiles. The tool is a collaboratively built database in which PIs, trainees, and evaluators contribute to trainees’ career and academic profiles to ensure that data are current and accurate. Incentives to encourage timely data contribution by trainees and program leaders are built into the system.



Track, Share, Compare: Evaluating Science Training Programs Using a Web-Based Career Tracking System

Types/Features of User Accounts

Primary Users : Students, Trainees, Faculty Members

- Username and password-protected access
- Entry and storage of career progress across 6 levels (pre-college, undergraduate, post-baccalaureate, graduate school, postdoctoral fellowship, career); particularly important for documenting trainee progress
- Ability to edit and update prior, date-stamped records
- Summaries of progress at any career level or for any category
- Résumé-generating feature that automates the creation of a CV/biosketch in multiple formats, including NSF and NIH
- Sharing feature that allows trainees to send a dynamically updating hyperlink to colleagues

Secondary Users: Program Leaders, University Administrators

- Username and password-protected access
- Summaries of progress at any career level or for any category or student
- Downloads of all data into Excel
- Communication with users in group
- Customizable to tracking additional areas critical to program

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Map of current users of the iBioSketch tool

To Explore a Primary User Account:

Go to www.iBioSketch.com

Username: **testuser**

Password: **testuserpw**

Benefits to Users

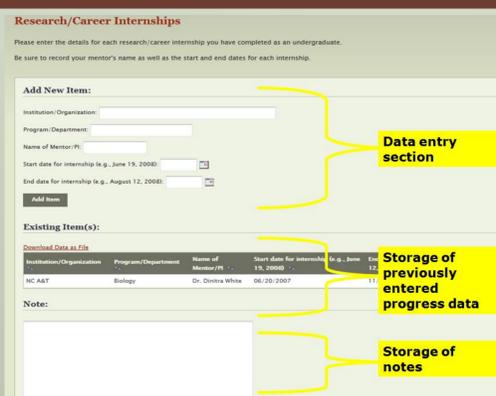
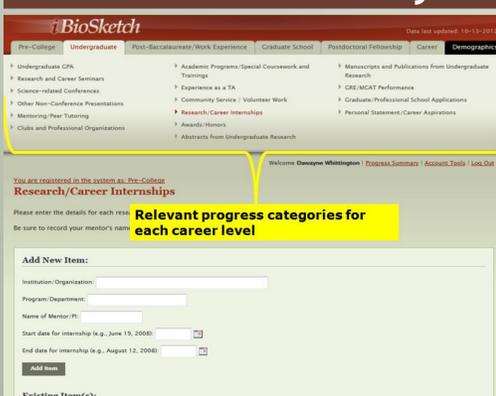
Benefits to Primary Users: Students, Trainees, Faculty Members

1. **Facilitates self-monitoring** of academic/career progress
2. **Increases awareness** of activities that constitute a strong résumé and that can increase marketability
3. **Helps users communicate academic/career progress** with research programs, graduate/postdoctoral programs, future employers

Benefits to Secondary Users: Program Leaders, Administrators

1. **Saves time** – Provides a more efficient way to monitor trainee/faculty data, *with reduced collection and analysis burden*
2. **Saves money** – The tool’s streamlined method for documenting résumé level outcomes frees resources for other evaluation/research activities to be implemented in documenting a program’s effectiveness
3. **Facilitates structuring of comparison reports** – e.g., department, student cohort, academic program
4. **Facilities long-term tracking** of prior program participants

Primary Users’ Interface

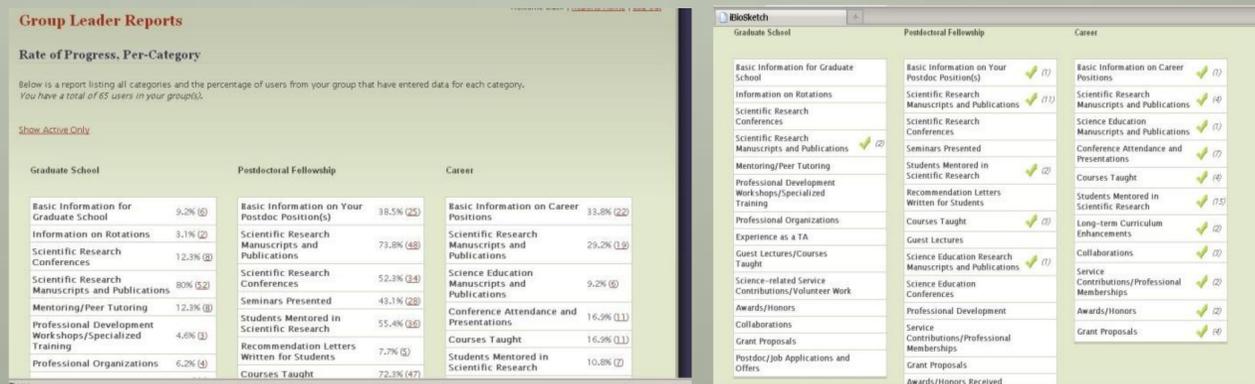


Primary Users’ Outputs



Sample standard BioSketch generated through the online system

Secondary Users’ Outputs



Project leaders’ Rates of Progress report

Project leaders’ Statistics per Trainee report

Sample of Summative Evaluation Questions That Can Be Answered Using iBioSketch

- What percent of graduate students in a particular program have published a paper?
- How many graduate students in a specific program have submitted grant proposals?
- How many students has a particular faculty member mentored in research?

- What percent of African-American, female students have applied for graduate school?
- How many graduate school offers has a specific group of students received?
- What is the most common career path for students who leave a particular program?

- What co-curricular variables are most correlated with entry to graduate school?
- How many students have attended/presented at scientific research conferences this year?

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Future Directions

- Comparison feature – Ability for project leaders or students to see individual or project-level progress in relation to a larger data set

Sample comparison report for project leaders (undergraduate focus)

- More reporting options and formats – e.g., ability to automatically structure tables required for grant renewals
- A module to track Individual Development Plans (IDPs)
- Alternative formats for CVs, biosketches, and program applications
- Increasing number of partner institutions and organizations
- Additional ways to further motivate trainees to enter data

Accomplishments

- **NIH Funding:** Small Business Innovation Research (SBIR) Phase I Grant funded by National Center for Research Resources (NCRR)
- **Publication:** Rybarczyk, B., Lerea, L., Lund, P., Whittington, D. Dykstra, L., *Postdoctoral Training Aligned with the Academic Professoriate*, *BioScience*, Sept 2011
- **Patent pending** (Published Nov 2011)