Data Tools for Institutional Transformation: Collaboration, Synthesis and Dissemination

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What is CPST?

• Founded in 1953
• Membership Research Organization
  – Societies – major scientific societies
  – Corporations
  – Academic Institutions
  – Foundations
  – Individuals
• Participating organization of AAAS
• Staff of four people.
• Mission:
  – To collect, analyze, and disseminate reliable information about the human resources in the U.S.
  – To promote the best possible programs of education and training of potential S&Es
  – To develop policies of utilization of S&Es
Publications

• Data from more than 100 U.S. and international sources.
• More than 350 tables.
• Purchase provides access to PowerPoint slides
STEM Trends - Bi-monthly print edition; Weekly E-Alerts with 3-4 articles.

Compendium on Salaries – professional society and private data. January 2010: Will focus on STARTING salaries.

www.cpst.org . . . Your work force data source
CPST’s and AIP’s PAID Project

• Production of four white papers reporting research findings from existing national data sources about career paths of women, especially women of color with doctoral degrees.

• Meetings with various key professional society representatives to inventory existing faculty data collections and then improve the comparability of data collected across societies. June 2009

• Convene a national conference revisiting the important report titled “The Double Bind: The Price of Being a Minority Woman in Science” (Malcom, Hall and Brown 1975) – 2011.

• Program evaluator - Laura Kramer.
Precursor Projects

**Toolkits:** Developed by the ADVANCE Institutional Transformation Indicators Working Group (NSF-Funded supplement on Frehill’s IT award at NMSU):

- Toolkit for Reporting Progress Toward NSF ADVANCE: Institutional Transformation Goals
  Available at [http://www.cpst.org/diversity/toolkit1.pdf](http://www.cpst.org/diversity/toolkit1.pdf)

- Using Program Evaluation To Ensure the Success of Your Advance Program
  Available at [http://www.cpst.org/diversity/toolkit2.pdf](http://www.cpst.org/diversity/toolkit2.pdf)

Effective Strategies to Diversify STEM Faculty (NSF funded, Research on Gender in Science and Engineering – Co-PIs O’Connell and Serrano at NMSU)

Alfred P. Sloan Foundation: Minorities and Non-Minorities in Academia: A Natural Sciences and Engineering Career Pipeline Approach (Commission on Professionals in Science and Technology)
Data Sources

• Survey of Doctorate Recipients
• Survey of Earned Doctorates
• Professional Societies’ data
• Diversity Surveys by D. Nelson
• National Study of Postsecondary Faculty
• SESTAT – National Study of College Graduates
Under Represented Minorities in Academic Positions

Sources: 2000-2005 PhD data from NORC analysis of SED data, RU/VHR refers to institutions classified by the Carnegie Foundation as Research Universities- Very High Research Activity under the 2006 guidelines; "Top 50" and "Tier 2" are from "Nelson Diversity Surveys" with "Top" departments defined by FY2002 research expenditures reported by NSF and data collected in 2005. "NSF-SDR" data are 2003 data from NSF's Science and Engineering Indicators, 2006 Table H-25. "Reg. Ranks" are faculty categorized as "Full," "Associate," or "Assistant" professor.
Professional society data: first steps

- Identify which societies have data on women faculty of color in STEM
- Focus on methodology behind data collection
- Assemble links to reports and example questionnaires (distributed in your packet)
Societies we contacted

• 10 engineering societies
• 16 life science societies
• 4 health and medical societies
• 9 math and computer science societies
• 8 physical science societies
• 7 social science societies

54 total
Data are available from:

- Membership databases (6)
- Directories or rosters (3)
- Surveys
  - Of members (4)
  - Of departments
    - Individual level (2)
    - Department level (aggregated) (5)
Membership data

• All have information on sex
• Fewer have information on ethnicity
• Most have information on employer
  – work at a university
  – indicate their industry as "education"
• Comparability?
• Also differences in the way race is asked
Problem with data collected from individuals

• Often there is no list of people from which to draw a sample
• Membership surveys exclude those who are not members
Data from surveys of members or individuals

- Association for Computing Machinery
- Society for Neuroscience
- American Meteorological Society
- American Chemical Society
Data from surveys of departments

• Individual-level data collected on race and sex
  – American Sociological Association
  – American Psychological Association

• Aggregate data collected
  – American Institute of Physics
  – Computing Research Association
  – Consortium for Ocean Leadership
  – American Statistical Association
  – American Mathematical Society
Problem with department level surveys

• How accurate is information gathered from another person?
• Respondents may not know how to classify someone
• Respondents may not know which of your categories applies
• Surveys that collect aggregated data can limit information available
Differences in reporting

- Some societies collect data but do not report it
- Data are not always reported in a way that make direct comparisons easy
Goals of this project

• Encourage discussion among professional societies that will lead to common standards
  – However, many societies don’t have much flexibility
  – Small numbers raise issues

• Generate awareness of professional society data for use by agencies and institutions
Professional Societies' Questionnaires and Reports on Women Faculty of Color

The Commission on Professionals in Science and Technology (CPST), in partnership with the American Institute of Physics (AIP), is engaged in a project to enhance the collection, reporting and use of data about women faculty in STEM, with a focus on women of color. On June 18, 2009 we conducted our first workshop. The main goal of the workshop was to determine the extent to which professional science and engineering societies' existing data collection efforts could provide information on women of color in the professoriate.

Prior to the workshop, professional society reports and questionnaires relating to women of color in science and engineering positions were collected. The following pages present links to the professional societies' reports and questionnaires:

- Professional Society Reports on Minority and Women Faculty
- Professional Society Questionnaires on Minority and Women Faculty

The workshop was attended by 24 individuals representing 16 professional societies. Surveys from 10 organizations were shared with participants. Presentations were made by Frehill, Irie and Anne MacLachlan of the University of California at Berkeley.
For more information

• Website:
  – [http://www.cpst.org/advance1.cfm](http://www.cpst.org/advance1.cfm)

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• Using Program Evaluation To Ensure the Success of Your Advance Program, Available at [http://www.cpst.org/diversity/toolkit2.pdf](http://www.cpst.org/diversity/toolkit2.pdf)