

Challenges to Diversity in STEM: Trends, Strategies & Research Directions

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- **Current trends: The good, bad and ugly.**
 - **Science of Broadening Participation**

Good News:

- **Academic employment of S&E doctorate holders reached a record high of 274,200 in 2006.**
- **The academic employment of women with S&E doctorates rose sharply between 1973 and 2006, reflecting the increase in the proportion of women among recent S&E doctorate holders.**
- **The absolute rate of conferral of S&E doctorates on members of underrepresented minority groups has increased, as has academic employment.**

Bad News:

- **The number of people who indicate having a disability who earn doctorates has declined 1997-2005.**

TABLE F-13. S&E doctorate recipients, by disability status: 1997–2005

Disability status	1997	1998	1999	2000	2001	2002	2003	2004	2005
All S&E doctorate recipients	27,229	27,273	25,931	25,966	25,496	24,582	25,274	26,272	27,974
No disability	26,909	26,951	25,594	25,638	25,156	24,254	24,961	25,986	27,667
With disability	320	322	337	328	340	328	313	286	307
Blind/visually impaired	39	55	54	49	39	26	28	22	24
Deaf/hard of hearing	45	36	40	38	48	42	48	33	40
Learning disabilities ^a	na	na	na	na	83	78	74	99	89
Physical/orthopedic disability	104	92	96	94	99	121	95	88	86
Vocal/speech disability	7	11	6	6	8	8	11	11	14
Other or more than one	98	96	110	110	58	48	52	28	49
Unspecified	27	32	31	31	5	5	5	5	5

na = not applicable.

^a Not included in survey before 2001.

NOTE: Respondents are asked if they have a disability and then are asked to mark one or more types of disability (blind/visually impaired, deaf/hard of hearing, physical/orthopedic disability, learning/cognitive disability, vocal/speech disability, or other disability).

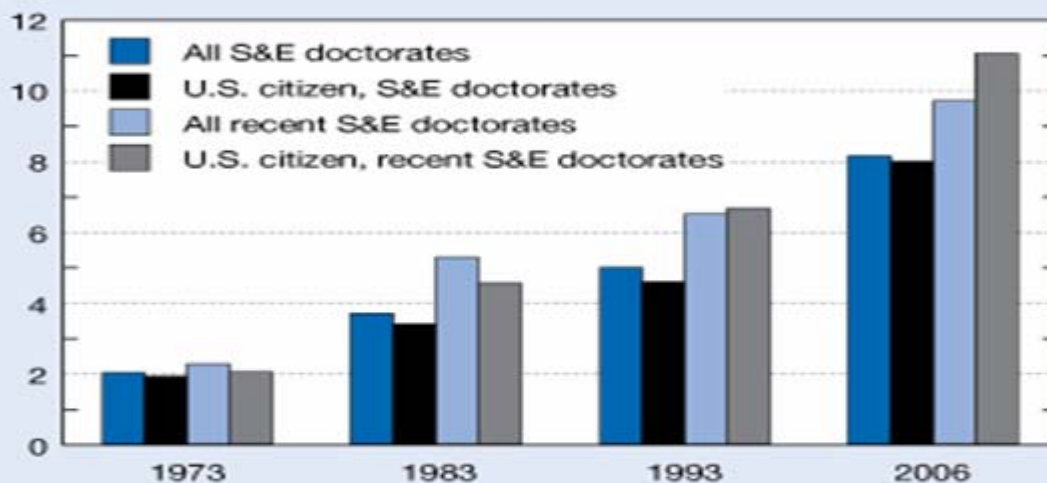
SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Earned Doctorates, 1997–2005.

More Bad News:

- **Taken together, Blacks, Hispanics, and American Indians/Alaska Natives remain a small percentage of the S&E doctorate holders employed in academia.**

Figure 5-20
Share of underrepresented minorities among S&E doctorate holders employed in academia, by citizenship status and years since degree: Selected years, 1973–2006

Percent



NOTES: Underrepresented minorities include blacks, Hispanics, and American Indians/Alaska Natives. Recent doctorate holders earned degrees within 3 years of survey. Denominator always refers to set of individuals defined in legend.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations (preliminary data for 2006).

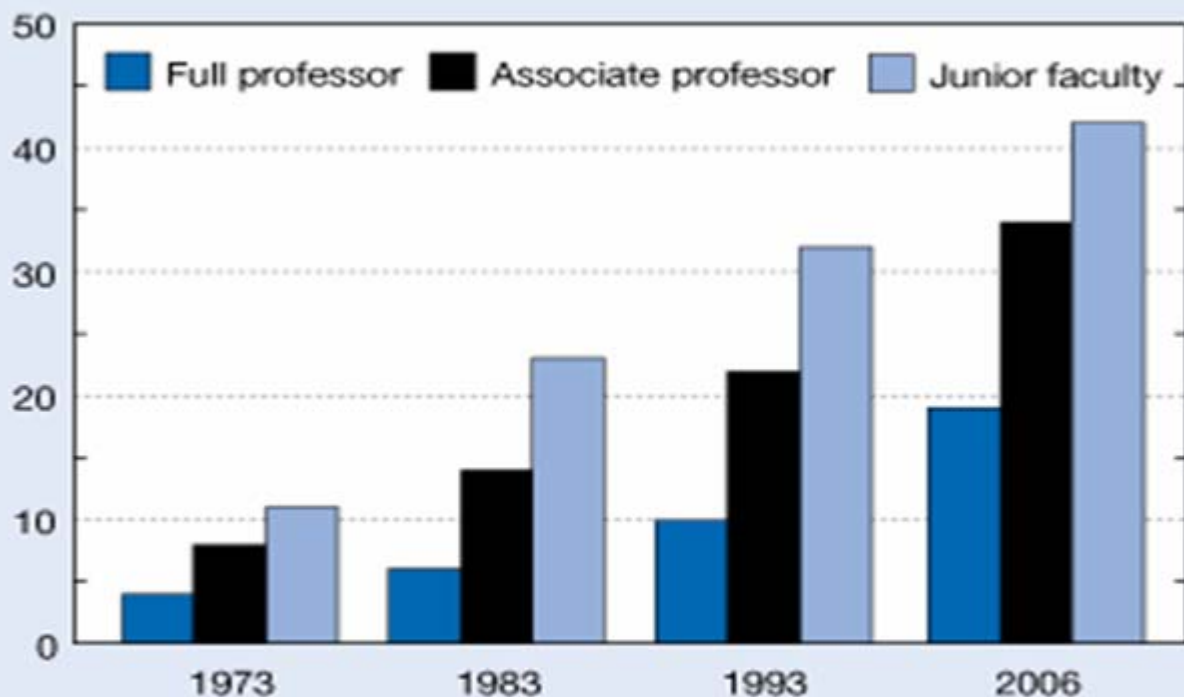
Science and Engineering Indicators 2008

And...

- **Women continue to be concentrated in the non-tenured ranks of academia.**

Figure 5-19
Share of doctoral S&E faculty positions held by women, by rank: Selected years, 1973–2006

Percent



NOTE: Junior faculty includes assistant professors and instructors.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Doctorate Recipients, special tabulations (preliminary data for 2006).

Science and Engineering Indicators 2008

A village of precisely 100 people...

- 81 would be from less developed countries with income of \$3,580.
- There would be 61 Asians, 13 Africans, 12 Europeans, 9 from S. America and the Caribbean, and 5 from N. America including Canada.
- 75 would be of color, while 25 would be White.
- 50 would be female, and 50 would be male.
- 48 would lack basic sanitation.
- 14 would suffer from malnutrition.
- Only 1 would have a college degree.

The Science of Broadening Participation (SBP)

- **Empirical demonstration documenting disparities in representation in STEM.**
- **Involves all levels of analysis of behavior including the individual, group and societal.**
- **Provides evidence for what works and what doesn't work.**

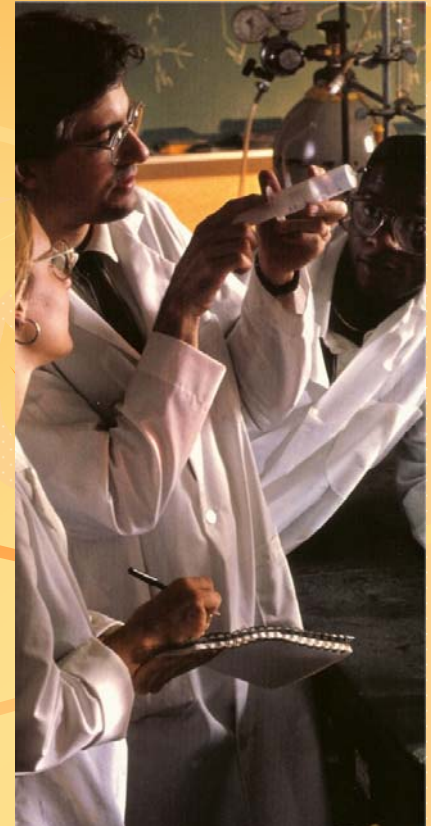


Examples of SBP Research Findings

❖ **Stereotype Vulnerability**

❖ **Diversity Training**

❖ **Physiological Stress
and Racism**



June 2008 Workshop on SBP

- http://sitemaker.umich.edu/sekaquapte_wa.lab/science_of_broadening_participation_workshop_2008
- http://sitemaker.umich.edu/sekaquapte_wa.lab/nsf_workshop_materials