The Gender Divide & Minority Abyss

A Roundtable Discussion

Figure 5.4 Square and round dialog boxes designed by Aaron Marcus (1993): (a) dialog box designed for white American women, and (b) dialog box designed for European adult male intellectuals.

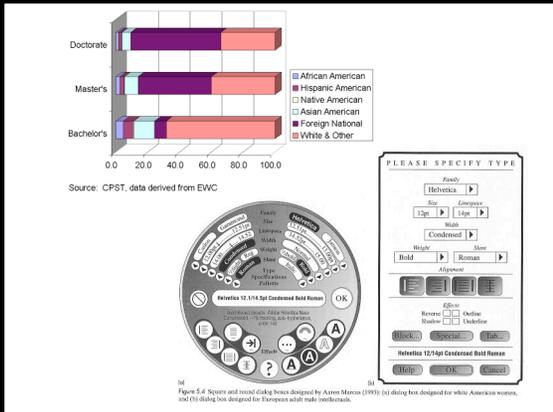Source: CPST, data derived from EWC

Background/The Problem

(~10 minutes)

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(~10 minutes)

Introductions

(~5 minutes)

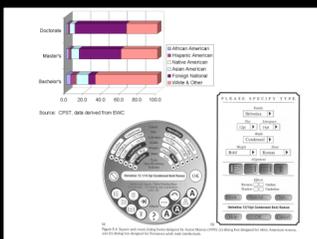Background/The Problem

(~10 minutes)

Introductions

(~5 minutes)

Brainstorming/Questions

(~30-45 minutes)

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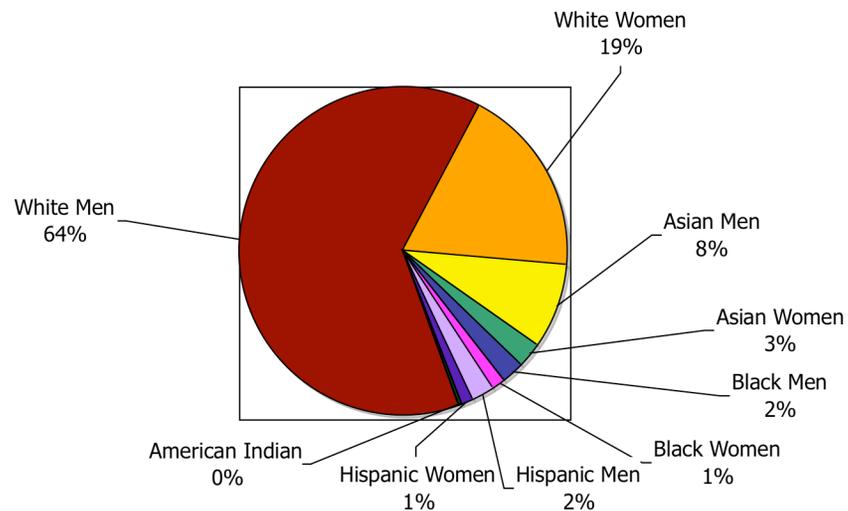# Evidence of under representation

Percentage of US Population (1999)

White Women
30%

White Men
29%

Asian Men
1%

Asian Women
2%

Black Men
5%

Black Women
5%

Hispanic Men
5%

Hispanic Women
5%

American Indian
1%

Disabilities
17%

Percentage S&E Population (1999)

White Women
19%

White Men
64%

Asian Men
8%

Asian Women
3%

Black Men
2%

Black Women
1%

Hispanic Men
2%

Hispanic Women
1%

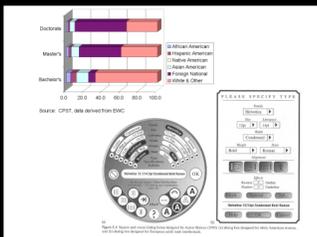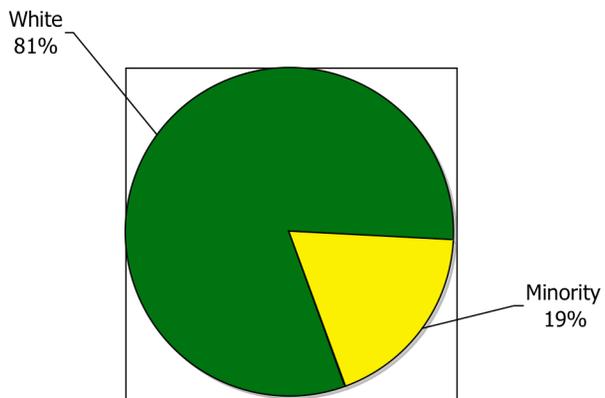American Indian
0%

Data from NSF, SETAT, Census Bureau, Current Population Survey - March 1999, and NSB 2002. Totals may not add up to 100% because of rounding.

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Evidence of under representation

White vs. Minority in S&E

White
81%

Minority
19%

Percentage S&E Population (1999)

White Women
19%

White Men
64%

Asian Men
8%

Asian Women
3%

Black Men
2%

Black Women
1%

American Indian
0%

Hispanic Women
1%

Hispanic Men
2%

Data from NSF, SETAT, Census Bureau, Current Population Survey - March 1999, and NSB 2002. Totals may not add up to 100% because of rounding.
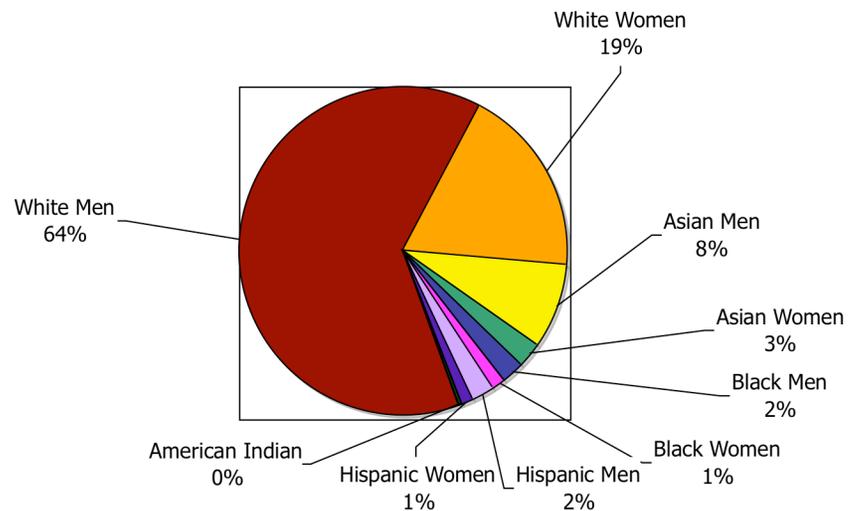
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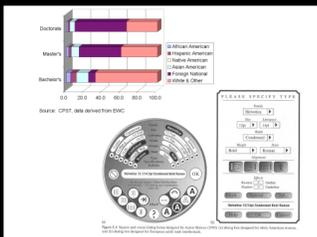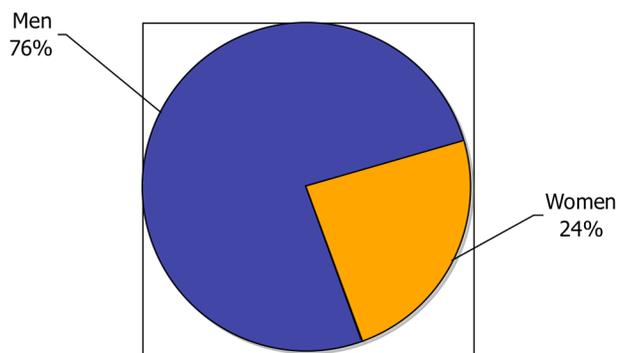# Evidence of under representation

Men vs. Women in S&E

Men 76%

Women 24%

Percentage S&E Population (1999)

White Women 19%

White Men 64%

Asian Men 8%

Asian Women 3%

Black Men 2%

Black Women 1%

American Indian 0%

Hispanic Women 1%

Hispanic Men 2%

Data from NSF, SETAT, Census Bureau, Current Population Survey - March 1999, and NSB 2002. Totals may not add up to 100% because of rounding.
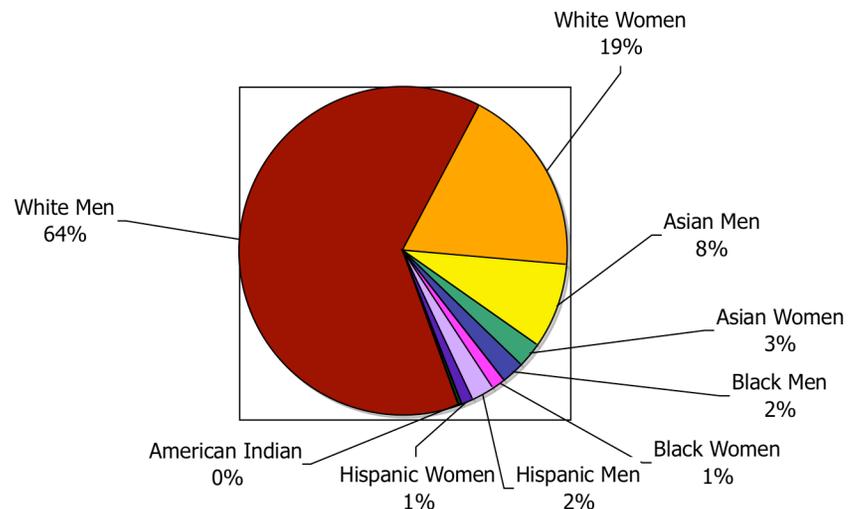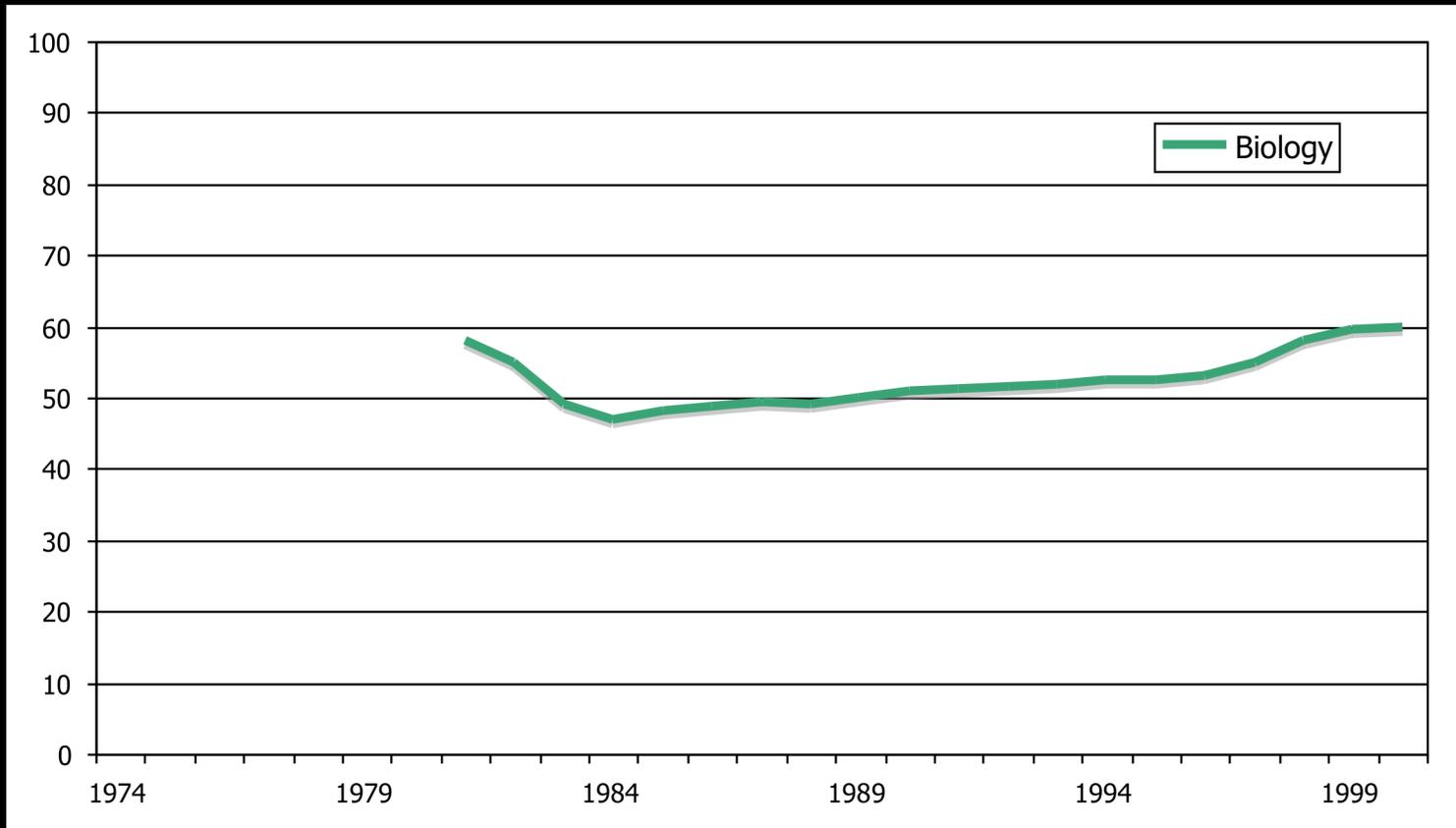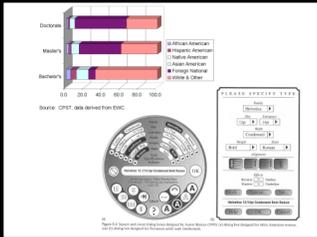
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Bachelor degrees awarded to women in the sciences by major

CPST, NSF, Association of Women in Science. Statistics: http://awis.org/statistics/r_statisticsmain.html
J. M. Cohoon. Toward improving female retention in the computer science major. Communications of the ACM, 2001.
Report on the Status of Women: Indiana University-Bloomington. Office for Women's Affairs, 2002.
Science and engineering degrees, by race/ethnicity of recipients: 1991-2000. http://www.nsf.gov/sbe/srs/nsf02329/sectb.htm, August 2002.

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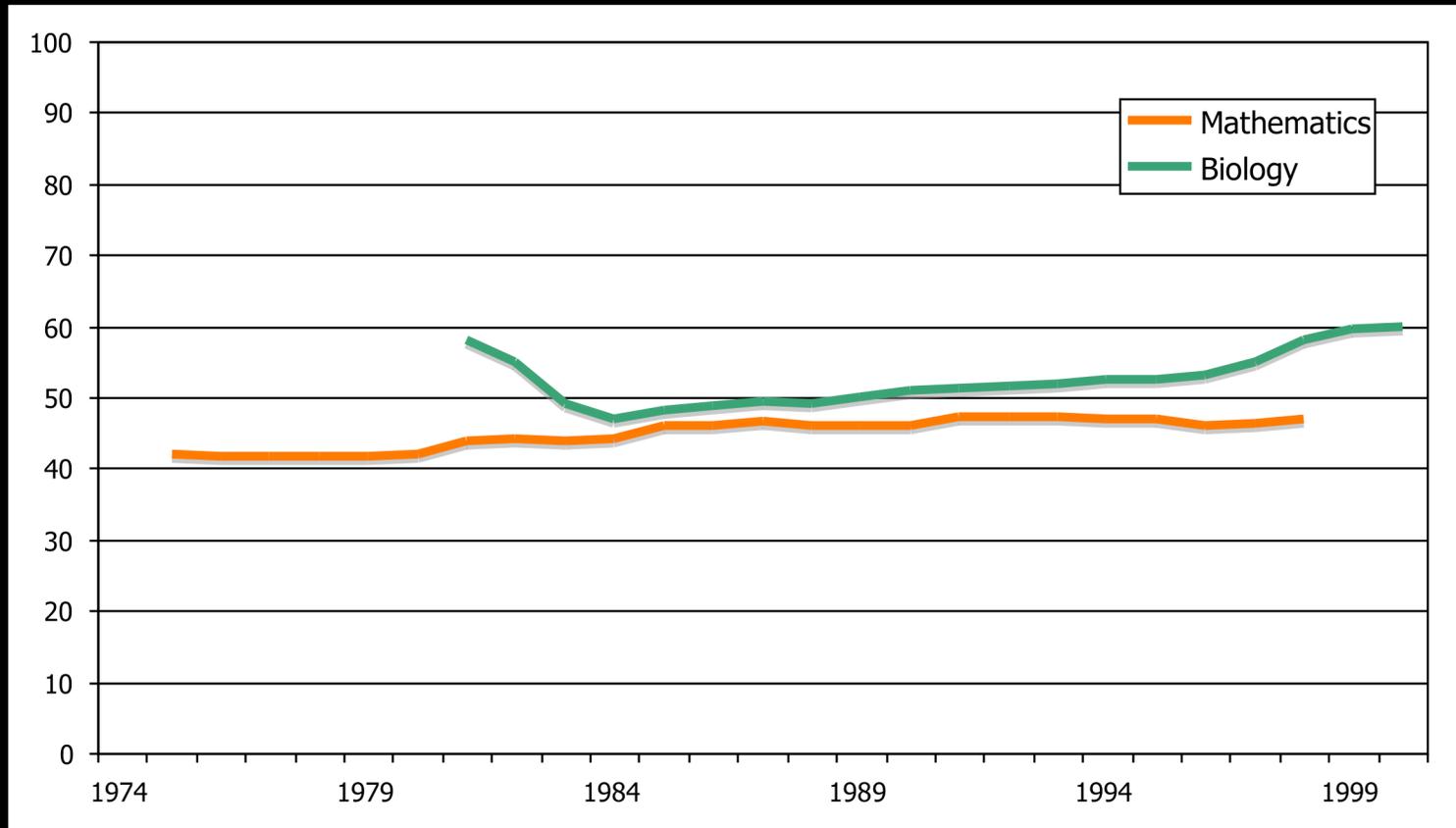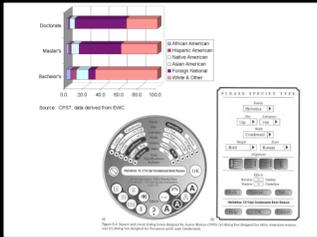# Bachelor degrees awarded to women in the sciences by major

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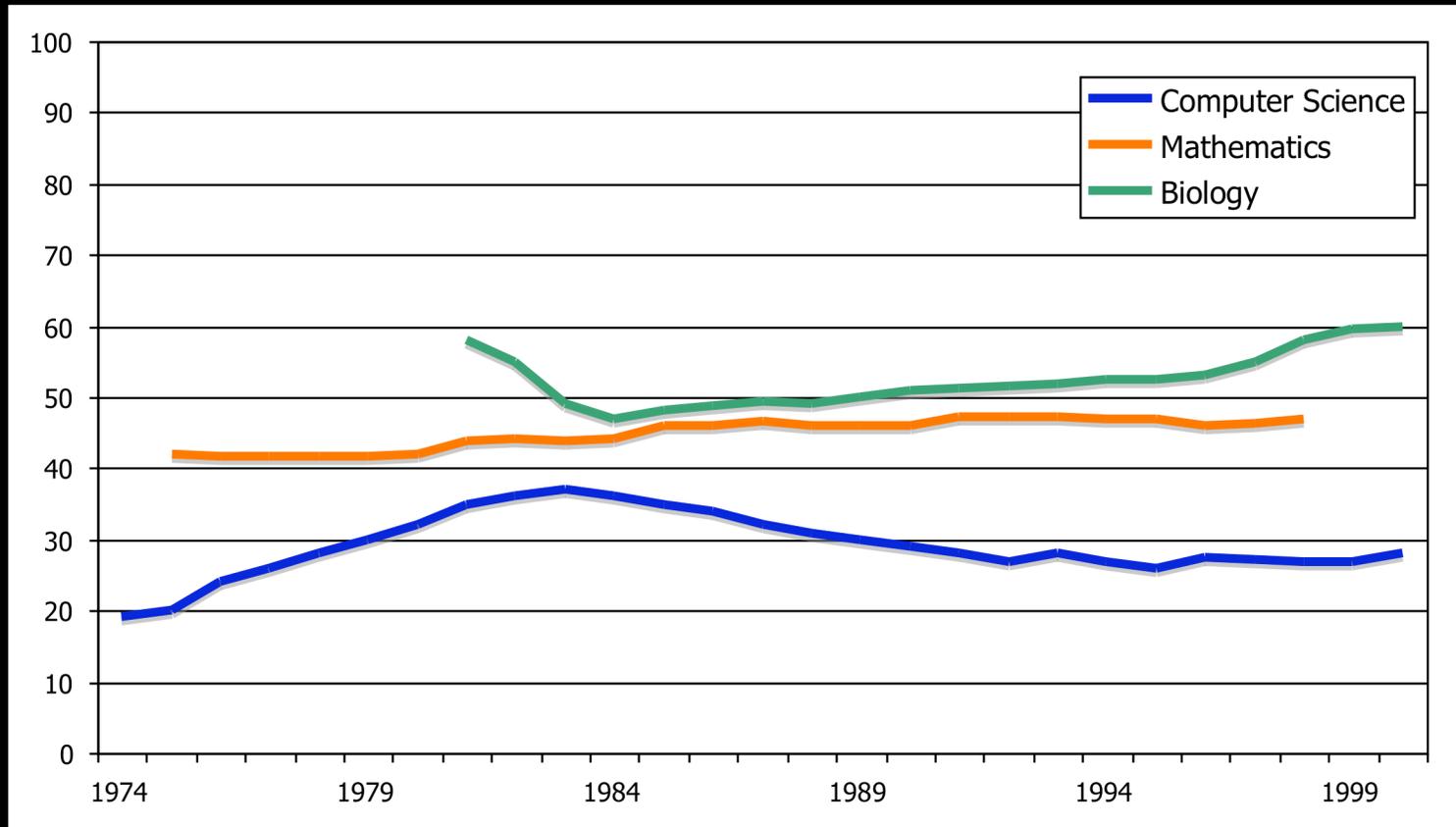Report on the Status of Women: Indiana University-Bloomington. Office for Women's Affairs, 2002.
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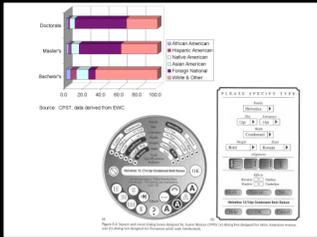
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Legend:
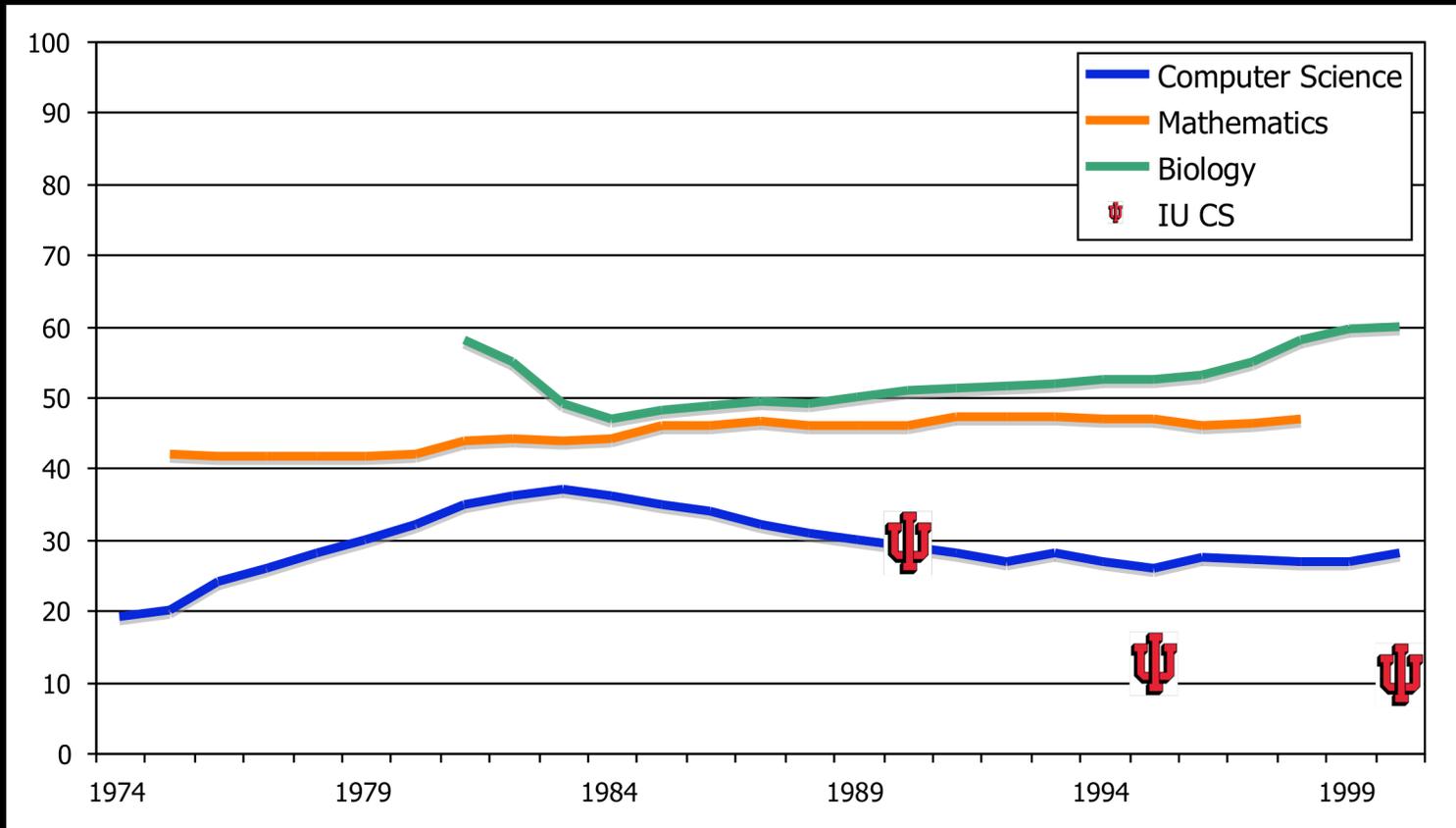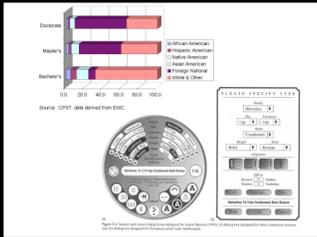- Computer Science
- Mathematics
- Biology
- IU CS

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J. M. Cohoon. Toward improving female retention in the computer science major. Communications of the ACM, 2001.

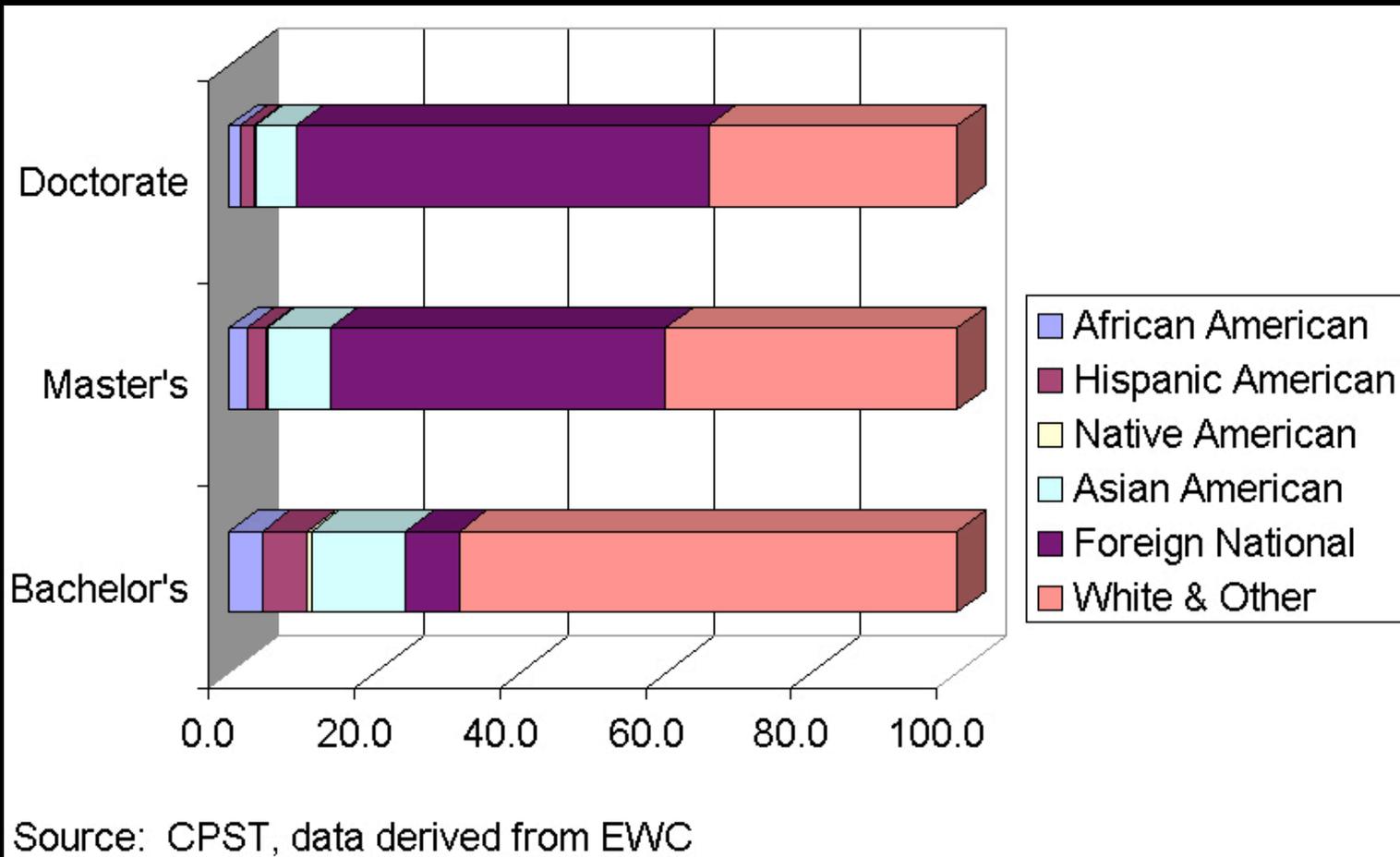Report on the Status of Women: Indiana University-Bloomington. Office for Women's Affairs, 2002.
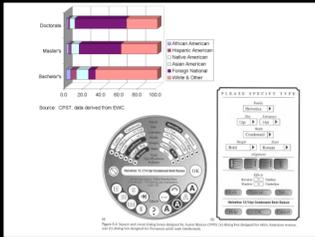
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Engineering degrees by level and group, 2003

Source: CPST, data derived from EWC

Legend:
- African American
- Hispanic American
- Native American
- Asian American
- Foreign National
- White & Other

Categories: Doctorate, Master's, Bachelor's

X-axis: 0.0, 20.0, 40.0, 60.0, 80.0, 100.0

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Why do we need women & minorities in computing?

Figure 5.4 Square and round dialog boxes designed by Aaron Marcus (1993): (a) dialog box designed for white American women, and (b) dialog box designed for European adult male intellectuals.

- Program design is improved when designers better understand users.

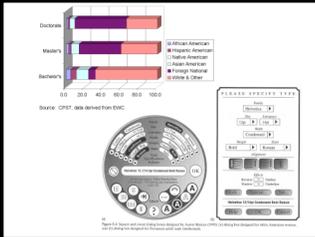- Having designers from a diversity of gender and ethnic backgrounds will improve designs.

DESIGN: Marcus, A (1993) Human communication issues in advanced UIs. Communications of the ACM, 101-109.

USER STUDY: Teasley, B., Leventhal, L., Blumenthal, B., Instone, K., and Stone, D. 1994) Cultural diversity in user interface design. SIGCHI Bulletin, 26(1), 36-40.
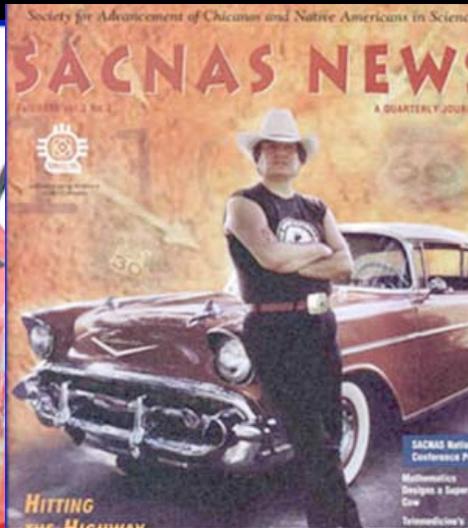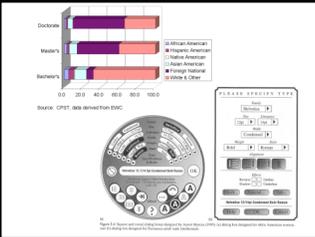
Is Diversity in Computing a Moral Matter? In Inroads, by Deborah G. Johnson & Keith W. Miller

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What can we do?

- Recruitment
- Retaining

We can *recruit* by dispelling some common stereotypes

- CMU Roadshow
- IU's Just Be
- Invite guest speakers
- Be a positive role model

CMU Roadshow. http://women.cs.cmu.edu/What/Outreach/Roadshow/

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We can create a supportive department to *retain* students

- Educate parents, counselors, and teachers

- Create opportunities for interdisciplinary work

- Provide a safe, positive lab environment

- Create a community/support structure for underrepresented students

- Encourage *all* students

Dr. Gloria Childress Townsend

- Taught @ DePauw U for 25 years
- Professor & Chair of Computer Science Department
- Three degrees from IU Bloomington in mathematics and computer science
- Research in Evolutionary Computing
- Advocate for Women in Computing Issues

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Eden Miller Medina

- Assistant Professor of Informatics at IU

- Doctoral Student at MIT

- Research interests in intersection of Latin American Studies and the history and social studies of technology

- Graduated from Princeton with a degree in Electrical Engineering and certificate in Women's Studies

Stephanie Rose Gato

- Senior computer science major at Indiana University
- Founding member and current president of WIC@IU
- Undergraduate instructor
- Interned at Argonne National Laboratories
- Working on Fluency Project http://fluency.knownspace.org

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- Discussions we had:
  - How can CS teachers compete with other electorates when colleges don't let us write recommendations and the NCAA does not count it as an elective?
    - We recommend contacting ACM Education and ACM-W about this issue
    - This was a new question for us, but we are interested in seeing what happens

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Discussion Time

- How did Gloria, Eden, Stephanie, and Katie get interested in computing? How old were you?

- How can we compete with other electorates? Students want to sample all the electorates to know what they want to do.
  - We recommend getting technology integrated into other courses (photograph art, video tape guest speakers, look at population growth simulations in history classes, etc.)

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- How can we get students in the class room? I lost a student because she was only going to take the class if her friend took the class. Since her friend did not take the class, she dropped.
  – We recommend creating a community, so she can meet other people interested in computing at her school
  – Create a newsletter inviting students to your class
  – Extracurricular activities, such as technology clubs could get people interested

Discussion Time

- You mention role models - where can we find them if we don't have girls taking our classes?
  - Local universities are great places to start. For younger high school students, nothing is cooler than to have an upper class woman as a friend. For upper class women, college women are cool to hang out with. Try your local university.
  - Get other female faculty involved in technology related projects.