

CRA-W's Undergraduate Research Programs for Women (and Minorities)

LEAD Center Evaluation:

Baine Alexander, Wisconsin-Madison

CRA-W's DMP & CREW Programs:

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Joan Francioni, Winona State

The gender gap among CS grad students is higher than in any other field!

- Percentage of CS grads enrolled in grad or professional programs after one year [B&B]
 - 9.23% of men, 2.94% of women
 - Restrict to top students: *29.19% of men, 2.53% of women*
- If rates increase as in the last ten years, women will reach earned doctorate parity with men [Camp]
 - Across all fields by 2008
 - Across Science & Engineering by 2013
 - *In CS not until 2088!*

CRA-W's DMP: Distributed Mentoring Project

Since 1994, 240 students

CRA-W's CREW: Collaborative Research Experiences for Women

Since 1998, 164 students

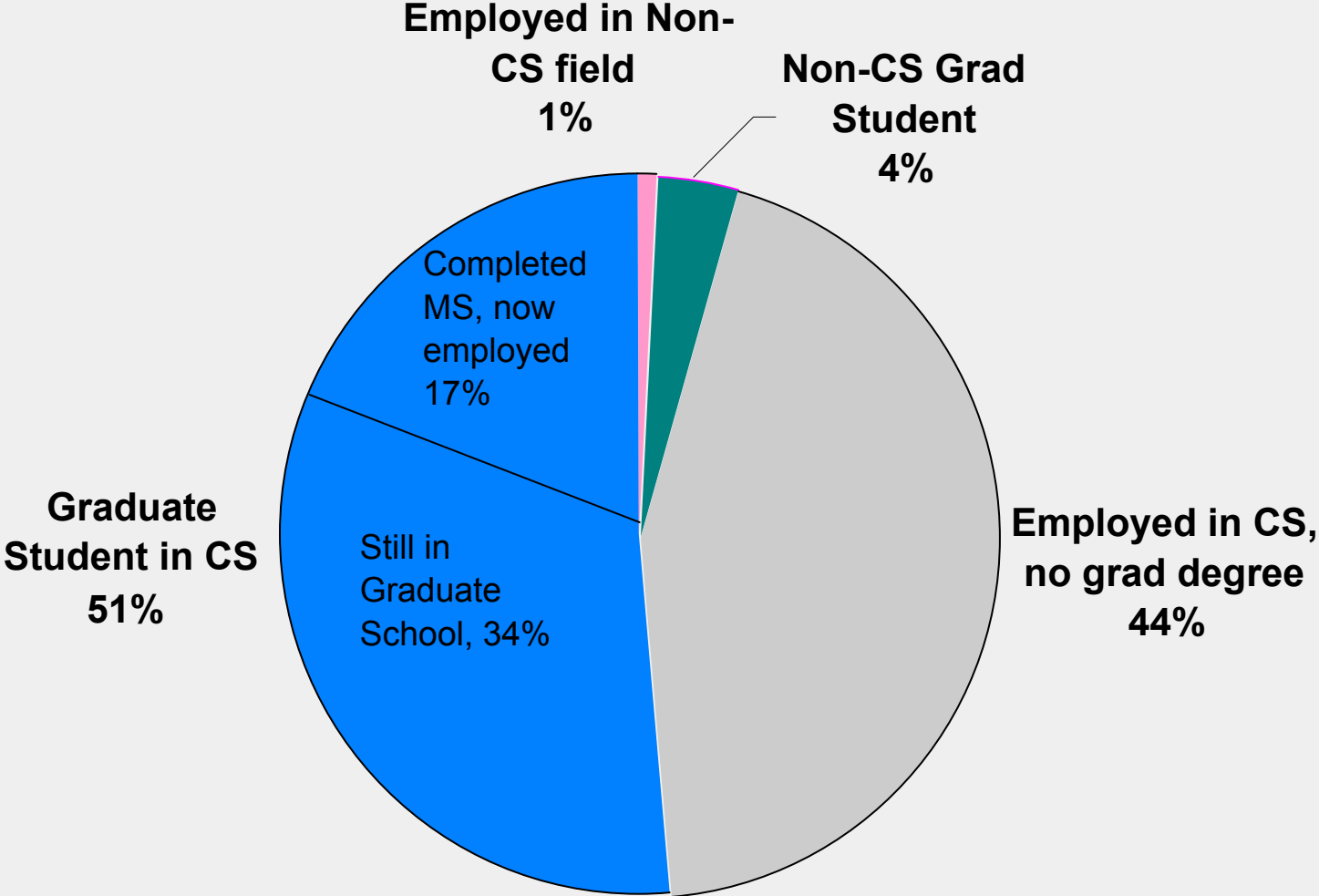
DMP

- Summer program
- Individual application
- 80% did research at another institution
- Female mentors
- Faculty mentor met through program
- 55% enrolled in doctoral institutions
- Individual research
- Stipend

CREW

- Academic-year program
- Joint proposal
- All did research at their home institution
- Male and female mentors
- Pre-existing relationship with faculty mentor
- 30% enrolled in doctoral institutions
- Team research with female peers
- Stipend and credit

LEAD Post-graduation Outcomes for DMP



LEAD DMP results

- 77% rated DMP a “highly influential” factor in encouraging graduate school enrollment
- Commitment to graduate school:
 - Before program: 37% committed
 - After program: 62% committed
- Preparation for graduate school:
 - Before program: 6% felt prepared
 - After program: 67% felt prepared
- 68% found female mentor particularly valuable

What did DMP students say?

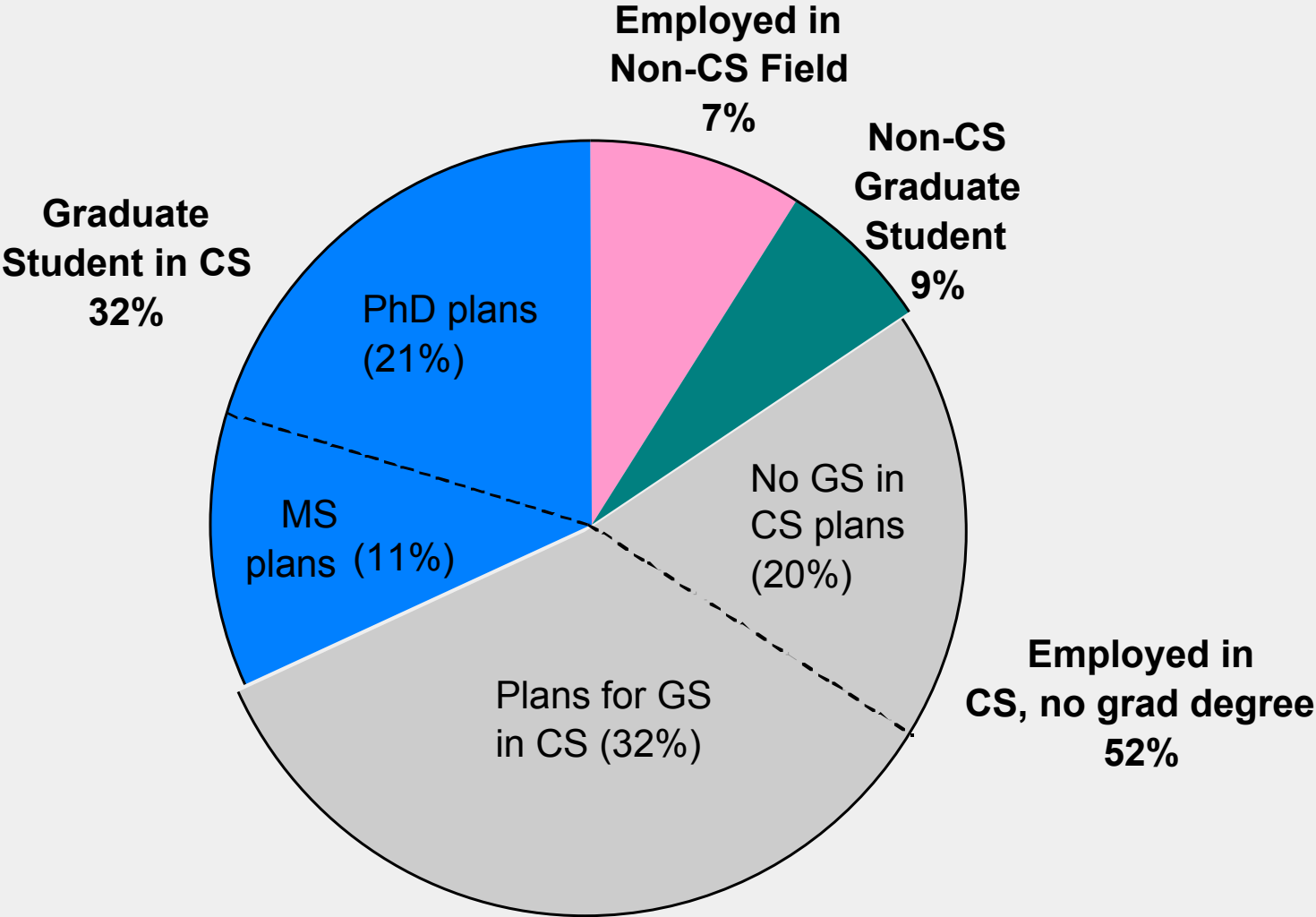
“... *I know that I can go to grad school* and make it through and enjoy the time, and get something very, very important out of it.”

“I guess it's really made me sure that I want to get my Master's... just meeting some of the master's students ... *they seemed like people I could see myself being in a couple of years or next year.*”

“I think it was a very good thing ... *it gave me a chance to see that a female could get all the way to the top*, sort of a tenure position, really well respected, very good researcher, *and also still have a life...*”

“She [*my mentor*] *is like this shining model of success*, you know? Not a success in terms of like you think of business school success, but *success in terms of like, how one would want to live their lives.*”

LEAD Post-graduation outcomes for CREW participants



What did CREW students say?

“This has been an *incredible learning experience*. I am now much more experienced in technical writing and in research and in debugging ... the experience of working with my partner has *helped me to learn to support my team* ... We have been able to encourage each other to work harder and to not give up.”

"To be honest, if it hadn't been all female, I probably wouldn't have participated. It seemed like a little bit of an advantage for us, I mean there's so many guys in CS, *there wasn't very much opportunity to meet other women ... to be able to have the experience of working with just women was nice.*"

LEAD CREW Survey results

CREW had a positive impact on:

94% - interest in computer science

61% - level of engagement/interest in coursework

61% - level of preparation for current job

61% - interest in doing CS research

58% - interest in going to graduate school in CS

What did their mentors say?

"We found that this project *provided an opportunity for mentoring that was otherwise sorely lacking* in our department."

"*The main impact was in the splash we made in the department and on campus ...* Here were these sharp young women doing so much more than attending classes. They had a poster at the University Research Day and at SCCS'99. They wrote a paper for the ... Journal of Undergraduate Research. *They were "Visible" with a capital V.*"

"All three ... *became spokeswomen for computer science on the campus.* Emily was one of two students invited to give a talk to the college's Board of Regents."

DMP and/or CREW are successful in increasing the number of women who attend graduate school, and also at

- Increasing technical skills
- Imparting “insider” information
- Providing close mentoring relationships and role models
- Increasing the confidence of women
- Increasing students' interest in CS
- Raising the career aspirations of women
- Improving the visibility of undergrad CS women on campus

WE NEED MORE RESOURCES FOR PROGRAMS LIKE THIS!

Dave Patterson, UC Berkeley:

“Isn't it opportunities like these that attracted us to academia in the first place? ...Given 5,000 CS&E faculty, if half of us mentored an underrepresented undergrad and these mentees went to grad school, we could change the face of our field.”

More info?

CRA-W: <http://www.cra.org/craw>

DMP: <http://www.cra.org/craw/dmp>

CREW: <http://www.cra.org/craw/crew>

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