

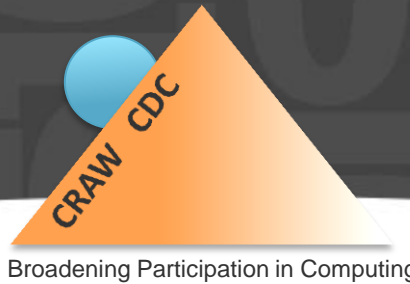
Data Buddies

Tracy Camp, CRA-W Co-Chair

Colorado School of Mines

Betsy Bizot, Director of Statistics and Evaluation

Computing Research Association



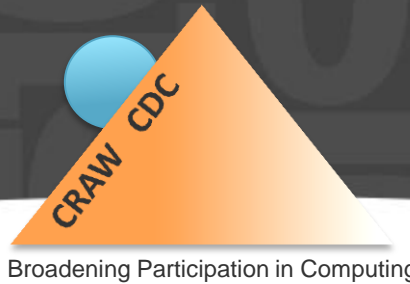
Data Buddies

a CRA-W/CDC Project



Committee on the
Status of **Women**
in Computing
Research



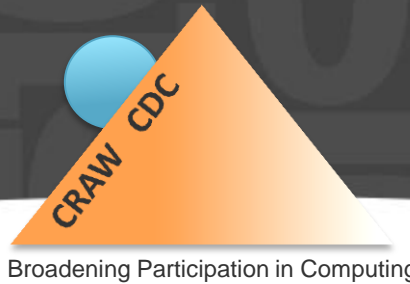


BPC Alliance: Widening the Research Pipeline



Committee on the
Status of **Women**
in Computing
Research





Data Buddies

a CRA-W/CDC Project

Kathryn McKinley, CRA-W Co-Chair

Microsoft Research/University of Texas, Austin

Brian Blake, CDC Outgoing Chair

University of Miami

Juan Gilbert, CDC Incoming Chair

Clemson University



Focuses on increasing the diversity of those participating in computing

Executive Committee:

Brian Blake, U of Miami, past Chair

Juan Gilbert, Clemson, Chair

Charles Isbell, GA Tech, at large

Jim Kurose, UMass, CRA rep.

Cynthia Lanius, Bellsouth, at large

Manuel Pérez-Quñones, Virginia Tech

Rodrigo Romero, U-TX, El Paso, IEEE rep.

Barbara Simmons, ACM rep.

Elaine Weyuker, AT&T at large

Members:

Nancy Amato, Texas A&M University

Jon Bashor, Lawrence Berkeley Labs

Enobong Hannah Branch, Univ. of Mass.

Jamika Burge, The Pennsylvania State Univ.

John Cavazos, University of Delaware

Deborah Cooper, Google

Ron Eglash, RPI

Maria Klawe, Harvey Mudd

Chad Jenkins, Brown University

Brandeis Marshall, Purdue University

Ron Metoyer, Oregon State University

Linda Morales, The University of TX at Dallas

Ann Redelfs, Independent Consultant

Erik Russell, CRA

Tiki Suarez-Brown, Florida A&M University

Valerie Taylor, Texas A&M

Pamela Williams, Logistics Manag. Inst.

Dale-Marie Wilson, UNCC

Bryant York, Portland State

CRA-W

Focuses on increasing the number and success of **women** in computing research

Board:

Deb Agrawal, LLNL

Nancy Amato, Texas A&M Univ.

Carla Brodley, Tufts University

AJ Brush, Microsoft

Tracy Camp, CO School of Mines, co-chair

Sheila Castaneda, Clarke College

Lori Clarke, Univ. of MA, Amherst

Joanne Cohoon, University of Virginia

Andrea Danyluk, Williams College

Dilma Da Silva, IBM Watson

Sandhya Dwarkadas, Univ. of Rochester

Carla Ellis, Duke University

Anna Karlin, Univ. of Washington

Tessa Lau, IBM Almaden Research Ctr.

Patty Lopez, Intel

Margaret Martonosi, Princeton Univ.

Kathryn McKinley, Microsoft Research, co-chair

Gail Murphy, Univ. of British Columbia

Lori Pollock, Univ. of Delaware

Susan Roger, Duke University

Holly Rushmeier, Yale University

Erik Russell, CRA

Mary Lou Soffa, Univ of VA

Alliance Activities

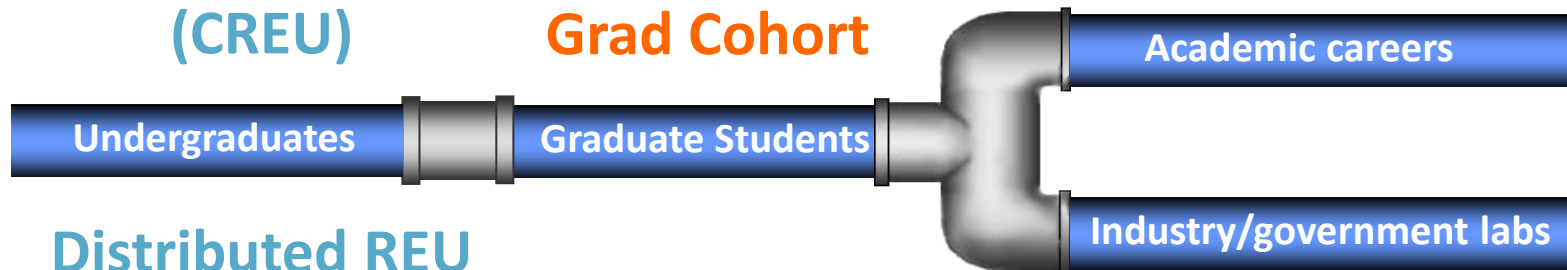
Tapia Celebration

Sending Students/Mentors to Conferences

**Collaborative REU
(CREU)**

CAPP

Grad Cohort



**Distributed REU
(DREU)**

Career Mentoring Workshop
Academic Workshop

◆ Alliance

◆ CDC

◆ CRA-W

Distinguished Lecture Series

Discipline-Specific Mentoring Workshops

Data Buddies/Evaluation

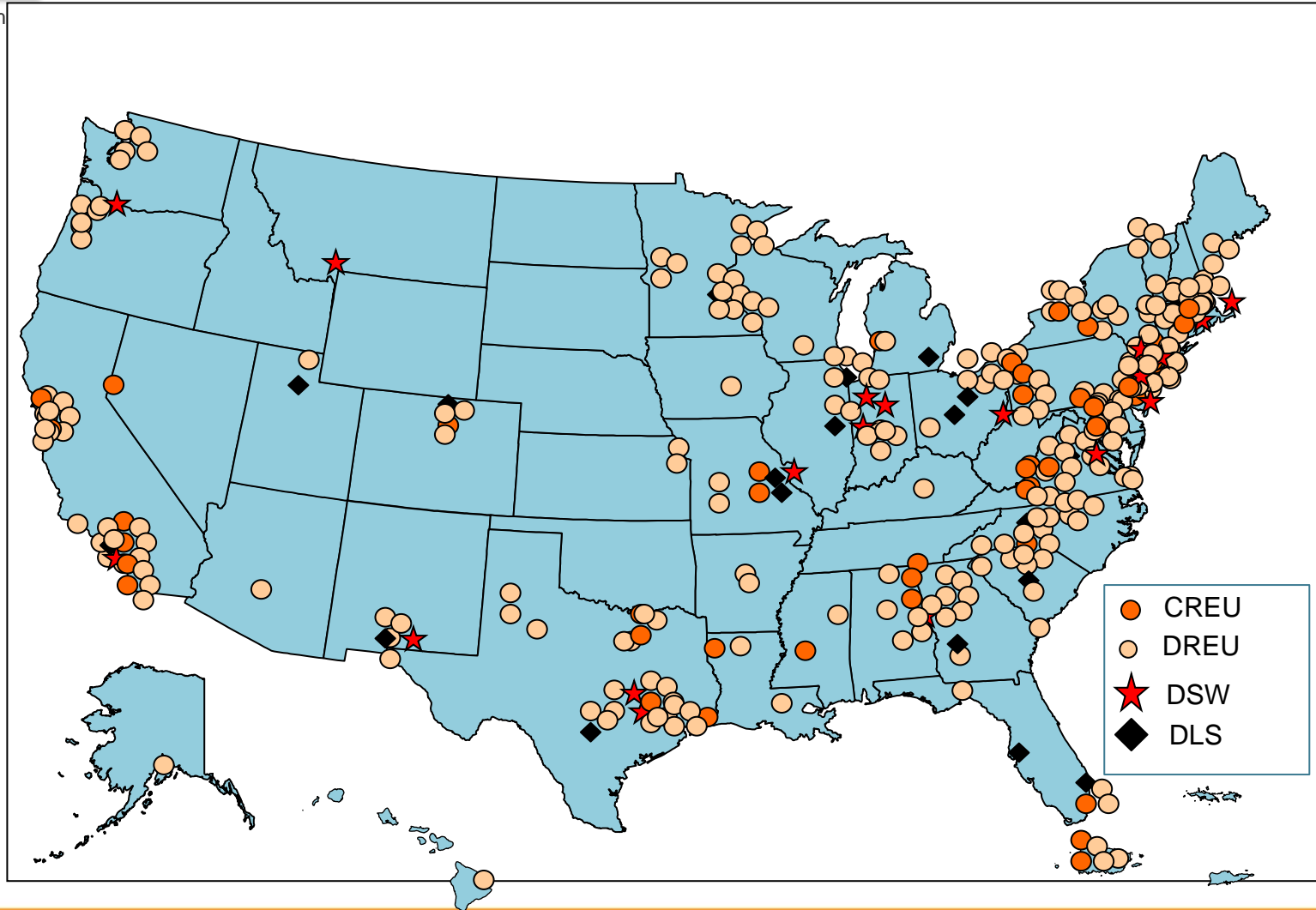
Addressing the Shrinking Pipeline

IEEE-CS Distinguished Visitors Program

CRAW-CDC BPC Participants 2007-2011

CRAW CDC

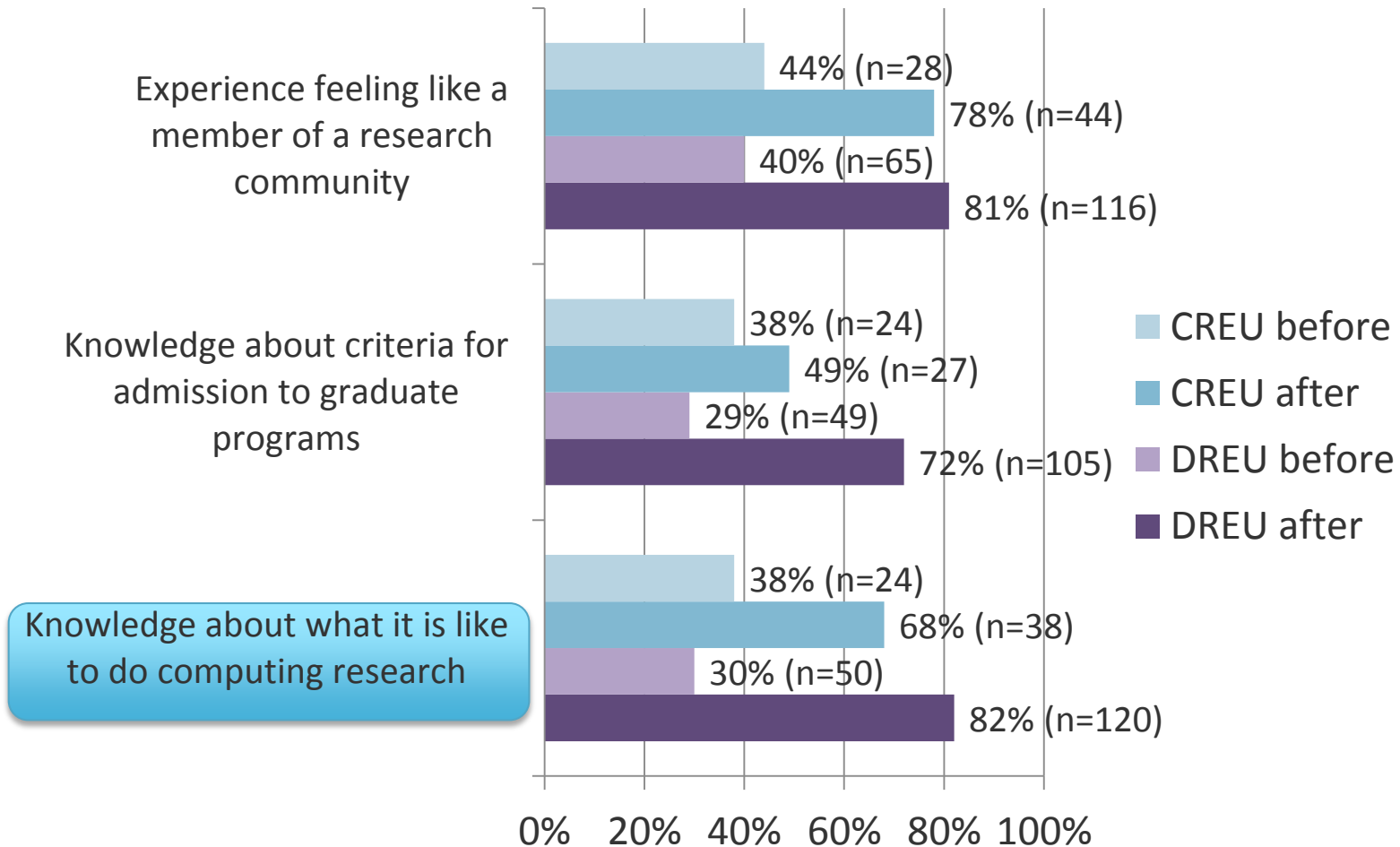
Broadening Participation in Com



Are we spending our money wisely?



BPC CREU/DREU Evaluation (in program)



What did we learn?

- What increased participant's interest, knowledge, and confidence in computing
- What happened to our participants
- How to improve our programs

Grad Cohort Evaluation



Discipline Specific Workshops



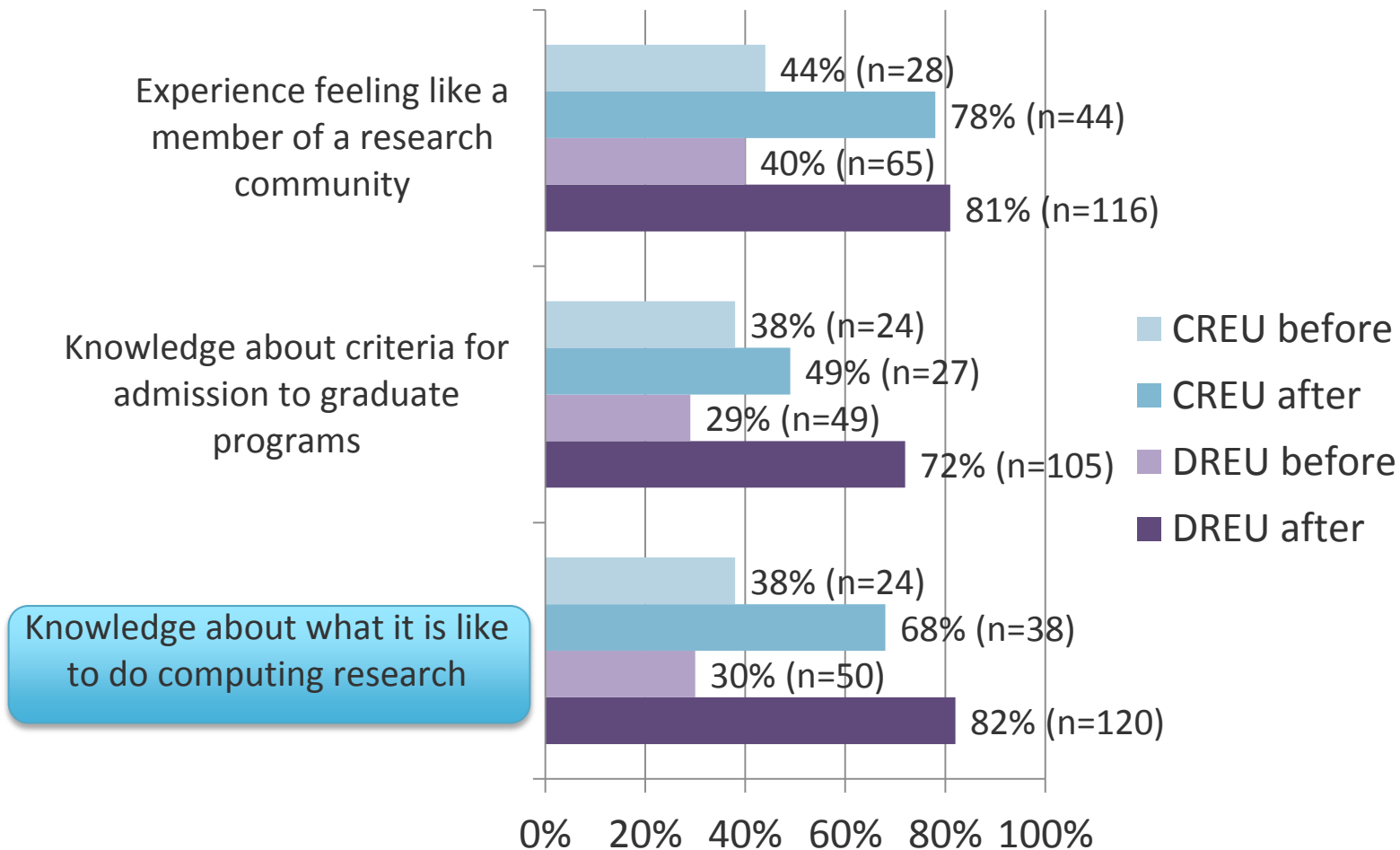
What did we learn?

We learned some valuable things ...

... but not answers to the BIG questions



BPC CREU/DREU Evaluation (in program)



... do nonparticipants make similar gains?

Are we spending our money wisely?



Evaluation



Comparison Group

Need people like our program participants
in EVERY way, except they are not
participants in the program



Comparison group = all computing
faculty/students (BS, MS, PhD) in the US

Randomly Selected Departments: Spring 2011

CRAW CDC

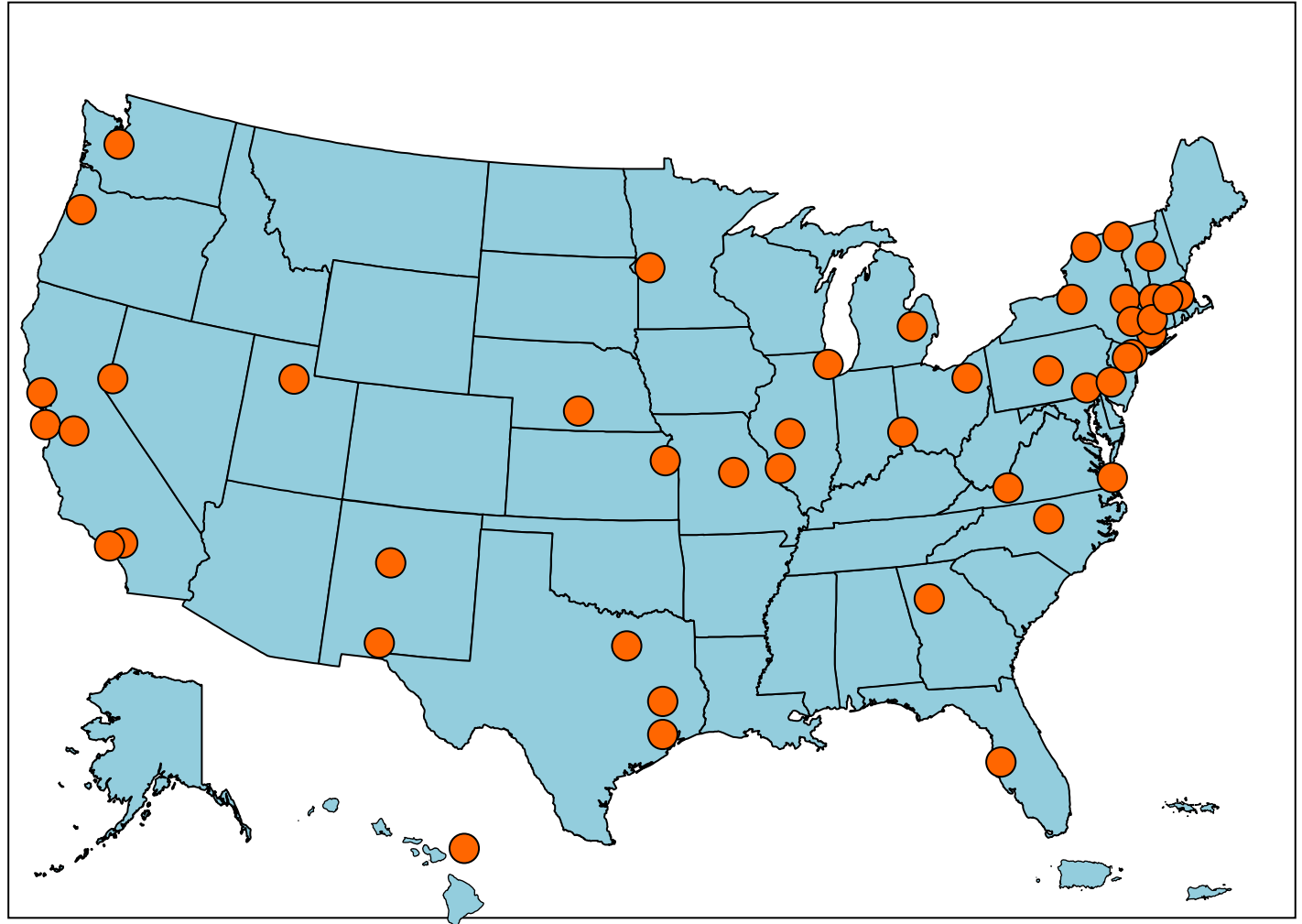
Broadening Participation in Computing

- **PhD Programs ranked 1-36 (8):**
Georgia Tech, Northwestern, Penn State, Stanford, UCLA, U Mass Amherst, UNC, Yale
- **Other PhD Programs (13):**
Dartmouth, New Mexico State, Old Dominion, Syracuse, U of Kansas, Missouri-Columbia, Nevada-Reno, New Mexico, South FL, Texas at Dallas, Utah, Wash at St. Louis, Worcester Polytech
- **Master's (8):**
CUNY Queens, Miami U-Oxford, St Joseph's, Texas Southern, U of Akron, Illinois-Springfield, Michigan-Flint, and Western Oregon
- **4-year (17):**
Albany State, Cal State-Stanislaus, CUNY Hunter, Harvey Mudd, Kean, Millersville of PA, Radford, Sonoma State, SUNY Plattsburg and Potsdam, U Hartford, Hawaii-Hilo, Houston-Downtown, Minnesota-Morris, Nebraska-Kearney, Puget Sound, and Wellesley

Randomly Selected Departments: Spring 2011

CRAW CDC

Broadening Participation in Computing



Survey Schedule

Broadening Participation in Computing


- Year 1
 - Spring 2011: Completing students
 - Fall 2011: Continuing students
- Year 2
 - Spring 2012: Completing students, plus follow up on last years' who agreed
 - Fall 2012: Continuing students
 - Winter 2012-13: Faculty and postdocs
- Continue for at least 5 years



Student Data Collected

Broadening Participation in Computing

- Student experience in their department (with mentoring, with research, with professional networks, etc.)
- Interest and confidence in continuing on a research track
- Highest intended degree
- Grad students: Career management knowledge and confidence



Student Data Collected

Undergraduate

Broadening Participation in Computing

- Spring surveys (completing students)
 - Graduate school applications
 - Plans for next fall
- Fall surveys (continuing students)
 - Career interests
 - What they did previous summer
 - If they did an REU, details about experience



Student Data Collected Graduate

Broadening Participation in Computing

- Spring surveys (completing students)
 - Job search
 - Professional experience: publications, teaching, internships
- Fall surveys (continuing students)
 - Professional contacts and networking

Are we spending our money wisely?



Absolutely!



Spring 2011: Graduating Students

Broadening Participation in Computing

- **Undergrad** participants more likely than non-participants to
 - Have applied to grad school in computing (51% vs. 23%);
 - Be attending grad school in computing in fall 2011 (39% vs. 19%);
 - Be enrolled in a PhD program if attending grad school (81% vs. 18%).

Data Potential

Broadening Participation in Computing

Data collected can yield results other
than those arising from
participant vs. non-participant
comparisons



Why Students don't do Research

Broadening Participation in Computing

- **Graduating** students did *not* participate in undergrad research for the following reasons
 - **All:** *no time*
 - **Women:** *not interested*
 - **URM:** *applied, but turned down*
 - **Non-URM:** *didn't pay well enough*



Desired Data NOT Collected

Broadening Participation in Computing

- Current surveys are for *individuals*
- Desire *department* surveys
 - URM+W community?
 - Number/Percent of URM+W?
 - URM+W don't enter, or are lost, or ...?



Privacy Considerations

- Who sends surveys (us or department)?
- No student name/email in data record
 - emails/names NOT kept
 - unless student agrees to follow-up year later
- Ask for voluntary information that creates unique ID for tracking, e.g.,
 - 1st three letters of the city you were born
 - 2-digit birth date
- If share data, match ID to random #
- No dept report if <10 students respond
 - URM+W information never shared



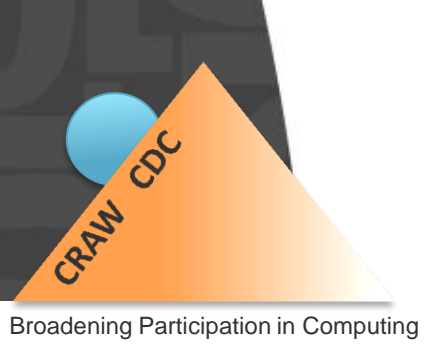
Data Buddies: Join us!

- Volunteer to be a Data Buddy
 - Receive a department report that compares responses from your students with other programs of the same type
- Use results to improve your programs/research
- Work with us to (maybe) expand our surveys to assist your program
- Use our survey questions in your evaluations

For more information

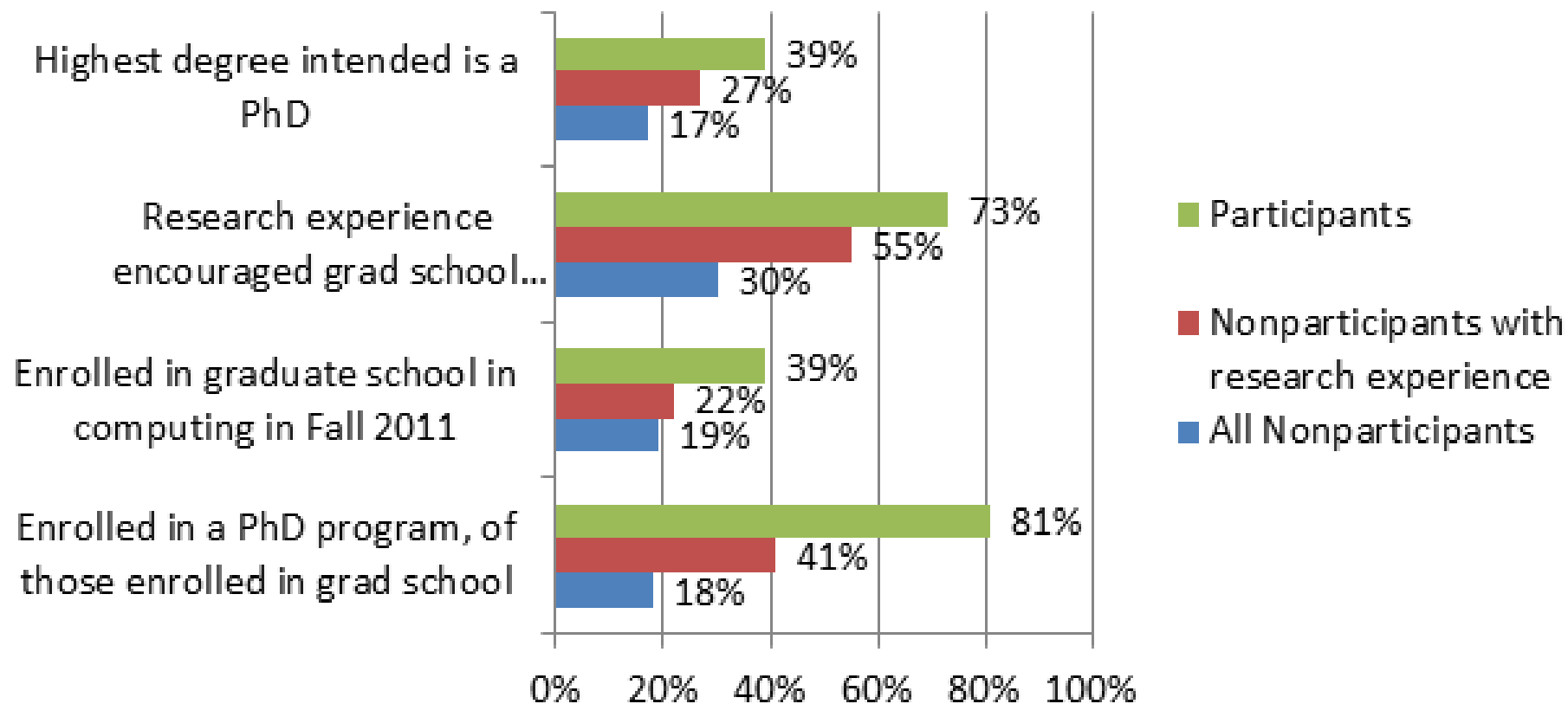
- See www.cra.org/databuddies
 - Initial report on Spring 2011 surveys now available
 - Information on being a volunteer department
- Or email databuddies@cra.org

QUESTIONS?



Broadening Participation in Computing





Survey Content

Undergraduate

- Both fall and spring surveys:
 - Student experience in their department, with mentoring, with research, with professional networks
 - Interest and confidence in continuing on a research track
 - Highest intended degree
- Spring surveys (completing students)
 - Graduate school applications
 - Plans for next fall
- Fall surveys (continuing students)
 - Career interests
 - What they did previous summer
 - If they did an REU, details about experience

Survey Content

Graduate

- Both fall and spring surveys:
 - Student experience in their department and with mentoring
 - Interest and confidence in continuing on a research track
 - Highest intended degree
 - Career management knowledge & confidence
- Spring surveys (completing students)
 - Job search
 - Professional experience: publications, teaching, internships
- Fall surveys (continuing students)
 - Professional contacts and networking