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
BPC Alliance: Widening the Research Pipeline
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
CDC

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-Quiñones, 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.
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 Redels, 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)
- Distributed REU (DREU)
- Grad Cohort
- Academic careers
- Industry/government labs
- 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
Are we spending our money wisely?
BPC CREU/DREU Evaluation (in program)

Experience feeling like a member of a research community:
- CREU before: 44% (n=28)
- CREU after: 78% (n=44)
- DREU before: 40% (n=65)
- DREU after: 81% (n=116)

Knowledge about criteria for admission to graduate programs:
- CREU before: 38% (n=24)
- CREU after: 49% (n=27)
- DREU before: 29% (n=49)
- DREU after: 72% (n=105)

Knowledge about what it is like to do computing research:
- CREU before: 38% (n=24)
- CREU after: 68% (n=38)
- DREU before: 30% (n=50)
- DREU after: 82% (n=120)
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)

- **Experience feeling like a member of a research community**
  - CREU before: 44% (n=28), CREU after: 78% (n=44), DREU before: 40% (n=65), DREU after: 81% (n=116)

- **Knowledge about criteria for admission to graduate programs**
  - CREU before: 38% (n=24), CREU after: 49% (n=27), DREU before: 29% (n=49), DREU after: 72% (n=105)

- **Knowledge about what it is like to do computing research**
  - CREU before: 38% (n=24), DREU before: 30% (n=50), DREU after: 82% (n=120)

... 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

- **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
Survey Schedule

• **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

- 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
Broadening Participation in Computing

Student Data Collected
Undergraduate

• 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

• **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**

- **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

Data collected can yield results other than those arising from participant vs. non-participant comparisons
Why Students don’t do Research

• **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

• 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](http://www.cra.org/databuddies)
  – Initial report on Spring 2011 surveys now available
  – Information on being a volunteer department

• Or email [databuddies@cra.org](mailto:databuddies@cra.org)

QUESTIONS?
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