

Microsoft® Research

Faculty Summit

10
YEAR ANNIVERSARY

Attracting and Retaining Women in Computing: Real Programs for Real Progress

Maureen Biggers Indiana University

Tracy Camp Colorado School of Mines

Carla Ellis Duke University

Gillian Hayes University of California Irvine

Rita Powell University of Pennsylvania

Moderator: Jane Prey Microsoft Research

National Center for Women and Information Technology

We are a coalition of more than 160 prominent corporations, academic institutions, government agencies, and non-profits working to increase women's participation in information technology (IT).

We believe that inspiring more women to choose careers in IT isn't about parity; it's a compelling issue of innovation, competitiveness, and workforce sustainability. In a global economy, gender diversity in IT means a larger and more competitive workforce; in a world dependent on innovation, it means the ability to design technology that is as broad and creative as the people it serves.

NCWIT MISSION

Significantly Increase Women's Meaningful Participation in IT

NCWIT Has a Three-Pronged Strategy for Change

Build Capacity for NCWIT Member Organizations

Build and support alliances for institutional reform; identify and distribute best practices; promote exemplar organizations.

Create and Distribute Multimedia Resources

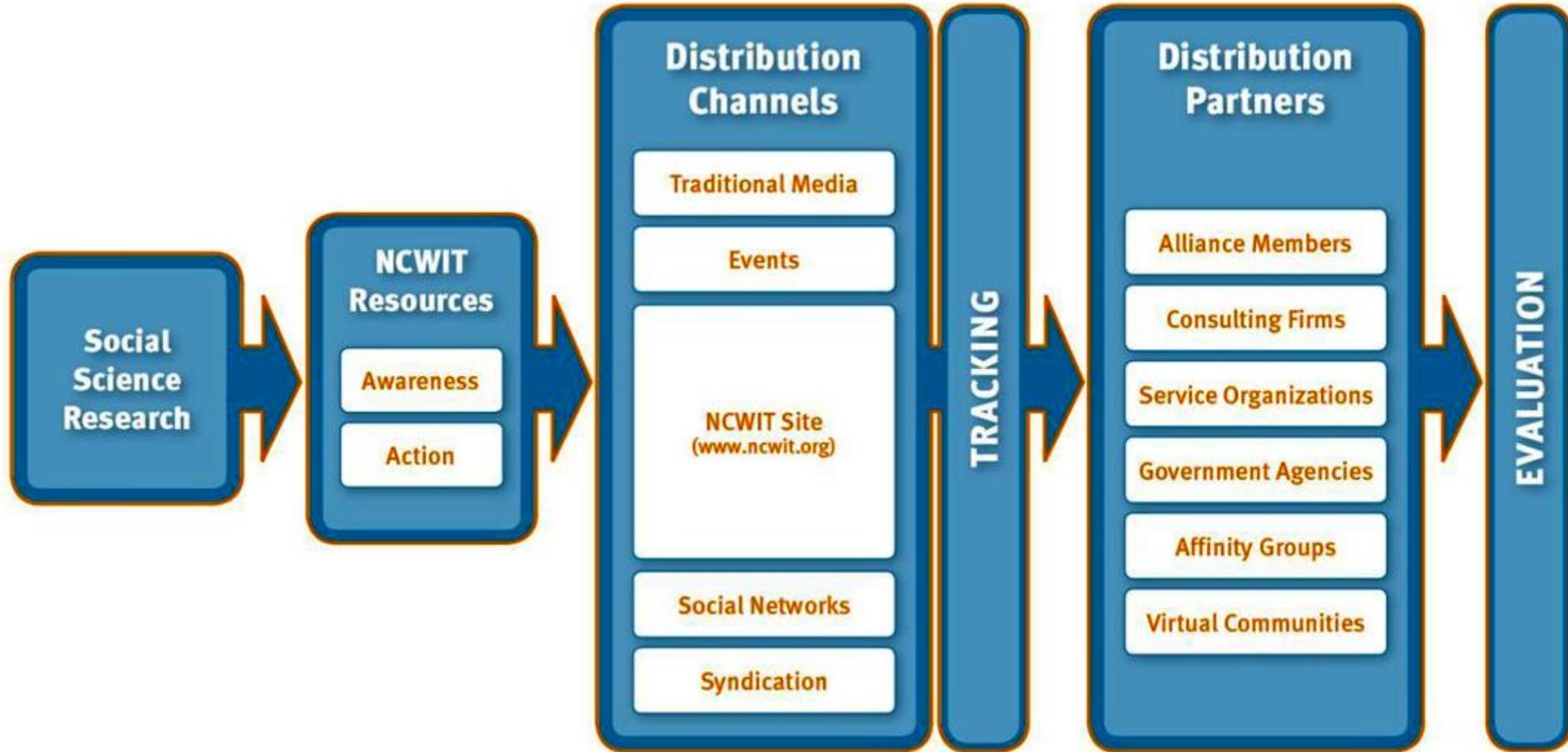
Research, create, and distribute top-notch resources on women and IT that raise awareness and accelerate reform.

Propagate Awareness and Outreach

Serve as national advocate for women and IT through media, campaigns, awards, events, and image reform.

Social Science Research

NCWIT's Resource Distribution Plan



NCWIT Academic Alliance



Academic Alliance Structure

Over 75 institutions. Membership is inclusive

- R1 Universities, Community Colleges, Public, Private, HBCUs, MSIs

AA is a distributed laboratory for best-practices implementation & evaluation

- access to leading-edge resources for recruiting and retention
- structured workshops to identify and innovate best-practices
- ability to share and disseminate information on programs and achievements
- collaborative environment

Seed fund provides micro-finance for reform

- to develop and implement reform programs
- start-up funds, up to \$15,000 per project

NCWIT Extension Services for Undergraduate Programs.

- customized capacity-building services to Academic Alliance members

Academic Alliance Objectives

- Contextualize, apply and disseminate **research-based promising practices** for recruiting women into and retaining them in computing in higher education
- Re-enforce and leverage the approach that NCWIT is taking with respect to institutional reform – **accountability, measurement and practices** based on evidence, and sustainability
- Provide access to **leading-edge resources** and a collaborative environment to identify and create best-practices

NCWIT Academic Alliance Members Have Significant Reach

NCWIT Academic Alliance member institutions represent 4 percent of schools reporting data on undergraduate degrees in 2007, yet these institutions graduated nearly 12 percent of all Computing and Information Sciences (CIS) baccalaureate students.



- Twenty-six percent of schools reporting PhD data are members of the NCWIT Academic Alliance, yet these schools graduate 37 percent of all CIS PhD students

Academic Alliance Seed Fund Award

The NCWIT Academic Alliance Seed Fund encourages the widespread application of new promising practices by awarding Academic Alliance members with funds to develop and implement initiatives for recruitment and retention in computing and information technology.

- Peer-reviewed by Academic Alliance members, awarded twice annually
- Recipients commit to sustaining successful projects
- Seed Fund proposals must relate to NCWIT promising practices
- Results are shared broadly

Inspiring Ambition

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Tracy Camp
Colorado School of Mines





CHAPTER 1



CHAPTER 2



CHAPTER 3



CHAPTER 4

Main Menu



DVD Evaluation Results

*“A career in computing
interests me.”*

Pre-test: 64% disagree
Post-test: 27% disagree

DVD Evaluation Results

“I can find a good job that combines my personal interests with computing.”

Pre-test: 0% strongly agree; 55% agree

Post-test: 45% strongly agree; 36% agree

Women in Computer Science High School Day for Girls

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Rita Powell
University of Pennsylvania



Women in Computer Science High School Day for Girls



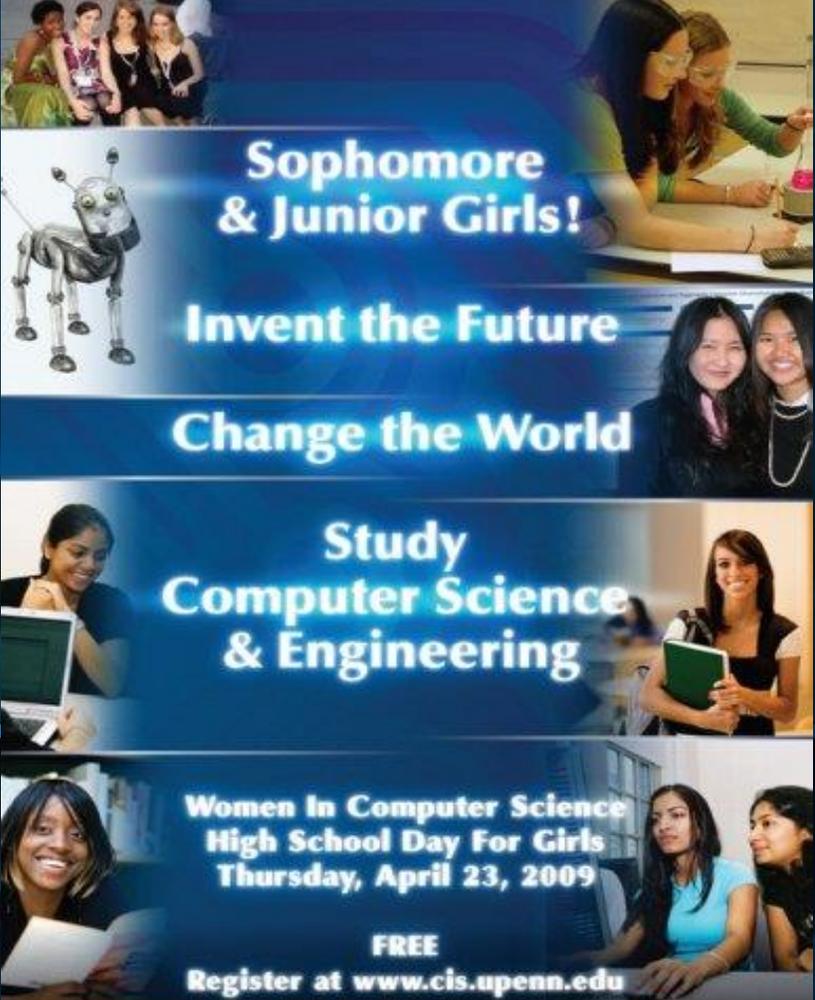
**WOMEN IN
COMPUTER SCIENCE**

**INVENT
THE FUTURE**

**CHANGE
THE WORLD**

 Penn
Engineering

Branding the Event
Logo, web site, poster, T shirts



**Sophomore
& Junior Girls!**

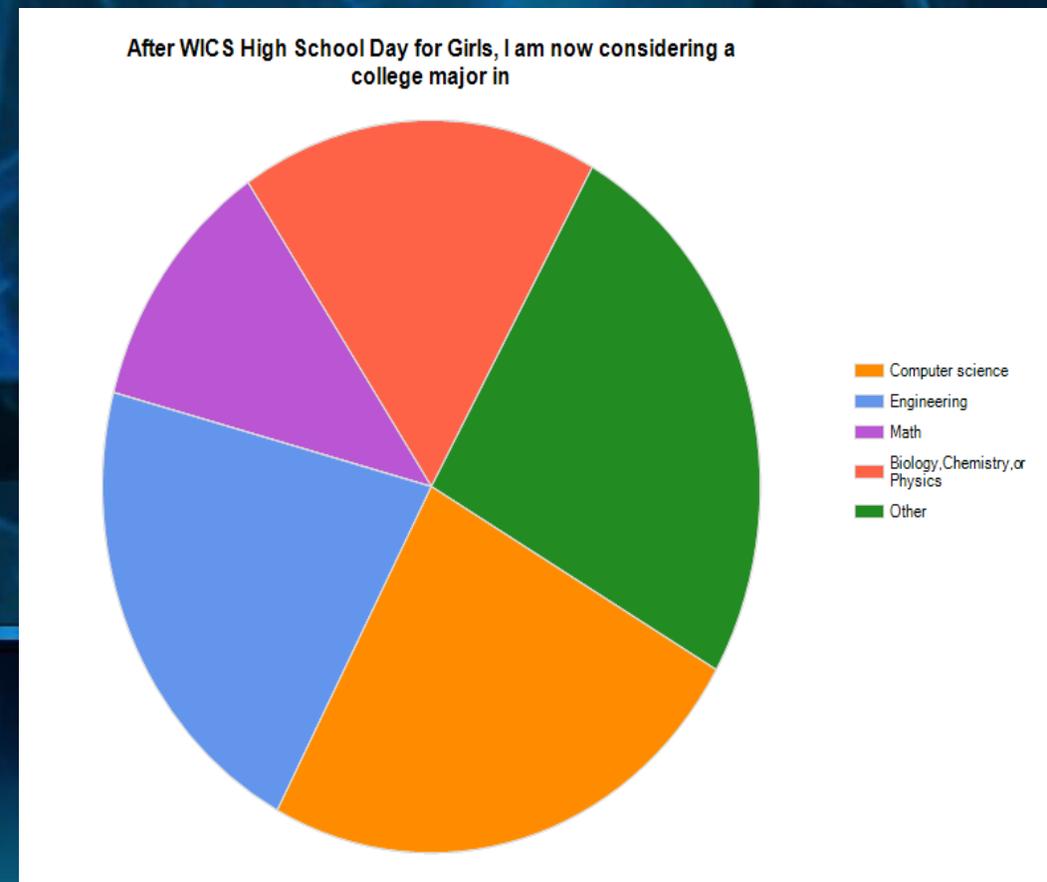
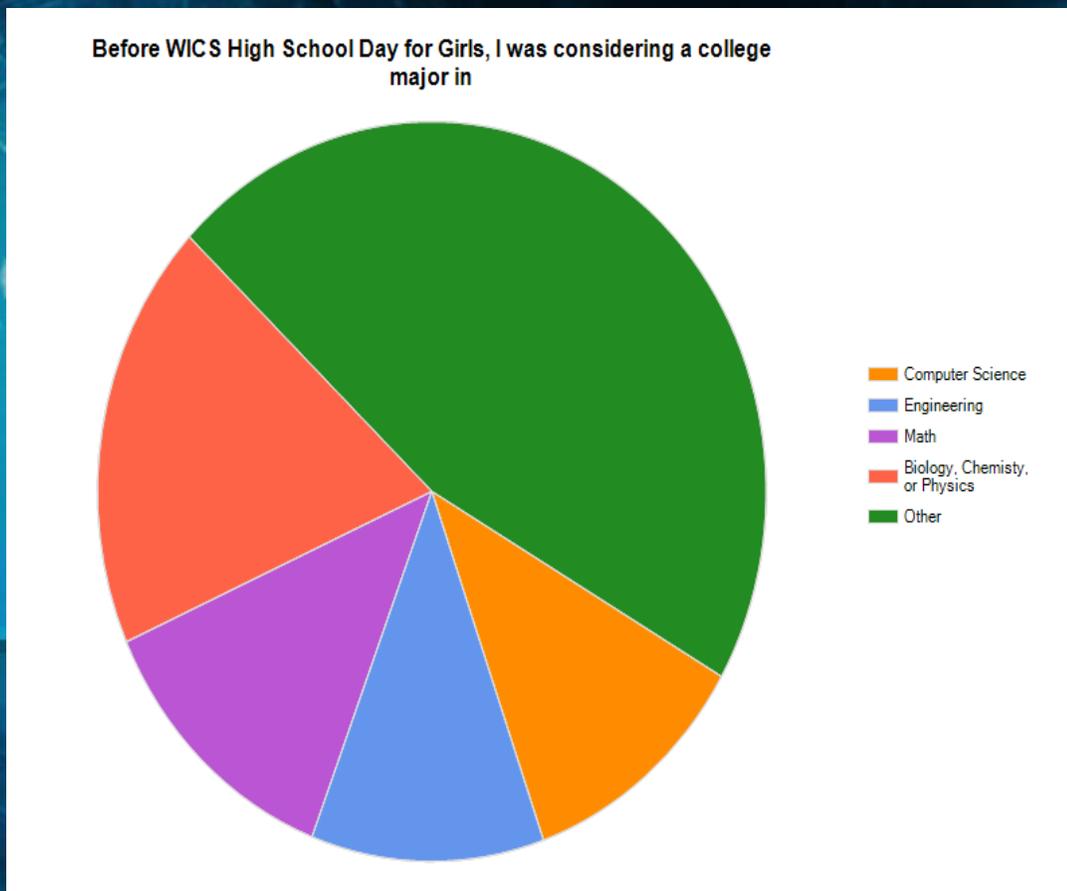
**Invent the Future
Change the World**

**Study
Computer Science
& Engineering**

**Women In Computer Science
High School Day For Girls
Thursday, April 23, 2009**

FREE
Register at www.cis.upenn.edu

Women in Computer Science High School Day for Girls



Initial Event Impact on the High School Girls

Women in Computer Science High School Day for Girls

- Recruited HS girls through Guidance Counselors
- Easy registration through departmental web page
- Piloted in 2007 with 20 girls
 Branded and expanded in 2008 with 50 girls
 Event held in 2009 with 85 girls
- Event agenda: special CS class, VIP lab tours, admissions presentation, panel discussion with Penn CS students & faculty, lots of food, and more...
- Feedback from students, guidance counselors and teachers has been overwhelmingly positive!
- Next Step: Leverage relationships developed with Guidance Counselors through this event to develop an event for them too!

Harnessing Hacking: Encouraging Inclusion through Creativity in IT Education for Latina Youth

Gillian R. Hayes, Paul Dourish, Rebecca Black,
Debra Richardson, Gabriela Marcu,
Sam Kaufman, Evelyn Fusimalaho

Girls Incorporated®
of Orange County

girls
inc.®

Inspiring all girls to be strong, smart, and boldSM



Harnessing “Hacking”

4 week summer camp
curriculum that
emphasizes:

- Creative technological design
- Problem-based, construction-oriented approach



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Playing Engineer

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- In small groups, rotate through different roles
- Reinforced with a career panel, demos, and poster creation



Multi-level Mentoring

Undergraduate,
High School, &
Middle School students
working together



Getting the Family Involved

- Spanish-speaking households can feel alienated from their English-speaking children
- Eurekathon brings everyone together in a dual language celebration
- Demos, posters, performances



Breadth of Seed Fund Projects

- ✓ Experimenting with a variety of K-12 outreach models
- ✓ Recruiting via near-peer mentoring
- ✓ Targeting cultural barriers
- ✓ Changing the Image of IT for vital audiences
- ✓ Creating a more supportive environment to retain women we have attracted
- ✓ Engaging girls & women through socially relevant projects



The Academic Alliance Seed Fund is sponsored by Microsoft Research.

Academic Alliance Seed Fund Projects

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Recruiting via near-peer mentoring



Oregon State University *Students Recruiting Students to CS:*
HS recruitment program



University of Nebraska Lincoln *Girl Empowerment Mentoring*
Statewide high school writing program with big-sister mentors

Experimenting with a variety of K-12 outreach models



University of Texas at Austin *Breakfast Bytes*
Saturday morning CS club for middle and high school students



Indiana University *Just Be: Making IT Real*
Team-based activities for high schools using computing concepts in a roadshow format



University of Pennsylvania *Outreach and Mentoring to High-school Girls*
Game design and summer camps engage high schools to encourage interest in computing



Academic Alliance Seed Fund Projects

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Targeting cultural barriers



Colorado Coalition for Gender and Information Technology

Inspiring Ambition

DVD to recruit from community colleges into four-year CS and IT programs



University of California Irvine

Encouraging Inclusion through Creativity in IT Education for Latina Youth

Innovative workshops for girls serving a primarily low SES Latina population



Creating a supportive environment to retain women we have attracted



Towson University

Multi-Level Mentoring

Student mentor program using peer-led team learning



Columbia University

Emerging Scholars Program

Encourages active discussion of CS topics in a positive, relaxed and open environment

Academic Alliance Seed Fund Projects

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Changing the Image of IT for vital audiences



Purdue University *Are You Smarter than your 5th Grader?*
Engages an influential layer – parents – with Pair Programming



DePauw University *Leveling the CS1 Playing Field*
Engages first-year women students through role modeling



Engaging girls & women through socially relevant projects



Rochester Institute of Technology *Golisano Scholars, Kids on Campus*
Residential summer program providing a collaborative environment



Claremont University *An Interdisciplinary Approach to Increase Interest in IT*
Engages female and underrepresented groups, through teamwork and problem-based learning in environmental projects.

Academic Alliance Seed Fund Projects

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- 15 winning projects are now underway
- Status and results for projects can be downloaded www.ncwit.org/pdf/NCWITSeedFundReports.pdf
- Round 5 will award 3 winners from 18 proposals.
- Round 6 proposals are due Nov 1, 2009
for more information: www.ncwit.org/work.awards.seed.html



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