

NICE Webinar Series

NATIONAL INITIATIVE FOR **CYBERSECURITY** EDUCATION



Women in Cybersecurity: Finding, Attracting and Cultivating Talent

April 17, 2019

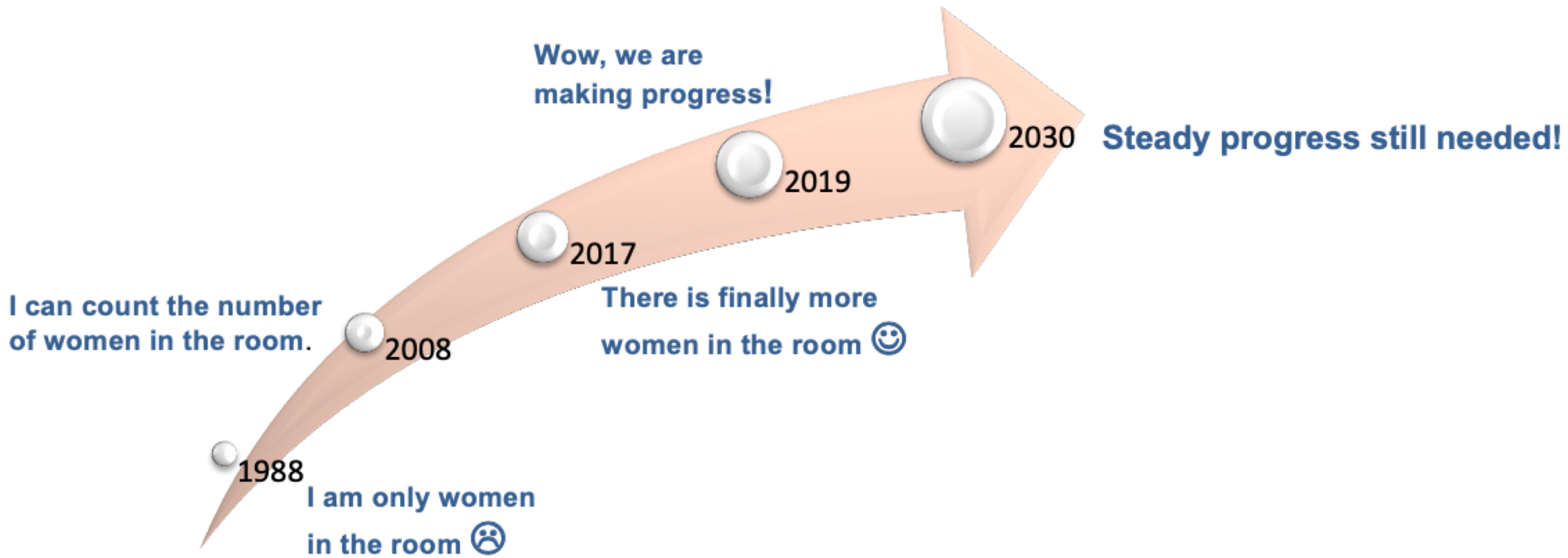


The Needle is Moving – What’s Working and What’s Needed?

Michele D. Guel

Distinguished Engineer & IoT Security Strategist, Cisco

@MicheleDGuel



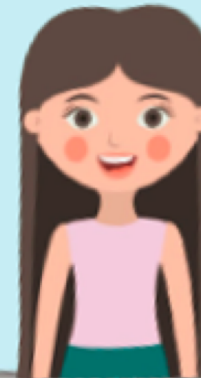
Engage Girls Early

Middle School

- Code.Org
 - in school classes and the Hour of Code campaign
- Gen Cyber summer camps
 - some middle school and girls only camps
- After school Clubs
 - Girls Who Code, Girl Scouts, CyberPatriot

DISCOVERED TALENT EVEN IN STUDENTS WHO DID NOT KNOW THEY HAD ANY.

"Before I recruited girls to be a part of this wonderful program I struggled to get girls to realize they could be computer scientists. I had girls actually saying they were too stupid to do this until I said, "Just try it!"



Some of my girls found out they were good at puzzles, some found out they liked programming. I now have girls asking our counselor about computer science degrees at our local community college."

High School

More of this needed

Provide Motivation & Recognition

- Girls are more motivated by making a meaningful difference.

“I want to make sure the bad guys get caught...and that the innocent people don't get caught up in the bad guy's schemes” - college student at WiCys conference

- Everyone wants to be a winner - trophies and prizes are fun!
- Provide ways for girls to shine and to realize they are good at this.
- Make the successes very visible with prizes, a reception and their picture in the paper!

More of this needed

Q & A

When I walk into a high school Cisco Networking class,
I'll see 30 boys and one girl.
Girls are being told loudly: 'You are not invited!'

Allen Paller, SANS

Make and Maintain Connections

- Speak at a class.
- Help with College selection.
- Buddy up at conferences.
- Create a school (or community club) around cybersecurity.
- Facilitate local cybersecurity meetups.
- Facilitate resume writing clinics and “interview how-tos”.
- Host career fairs with a focus on cybersecurity professions.
- Create internships & apprenticeships opportunities with in your organization.
- Provide speaker’s training and opportunities.

Good momentum – keep it coming!

Create Career Change Opportunities



- Internal
 - Mentoring
 - Training opportunities
 - Shadow & Stretch assignments
 - Job sharing & rotation
- External
 - SANS Women's Immersion Academy
 - Cisco Network Academy
 - Mini/Nano degrees
 - Industry certifications

Good momentum – keep it coming!

Address the “road hazards” to retention

- Don't leave the new hires on their own.
- Understand and own culture issues.
- Adopt and embrace work-life balance.
- Address growth and promotion limitations.



More focus and effort needed



Remember – We are #StrongerTogether

When we work together - we win together

When we collaborate and share ideas – we experience the multiplication factor

If we encourage and engage middle school girls now – they will be the 2030 workforce!

Q & A

“I decided to pursue a job in security after I attended WiCyS. ...I wasn't aware of the great opportunities out there, and I did not know that women can be leaders in security until I saw them at the conference.”

- Anon (WiCyS attendee)

A woman with dark hair, wearing glasses and large yellow headphones, is seated at a desk in an office. She is looking at a laptop screen while her hands are on the keyboard. In front of her are two large computer monitors. The background shows a window with a view of a city skyline. The overall scene is dimly lit, with the primary light source being the computer screens.

NEW WAYS TO BRING WOMEN INTO AND UP THROUGH CYBERSECURITY CAREERS

What We Did



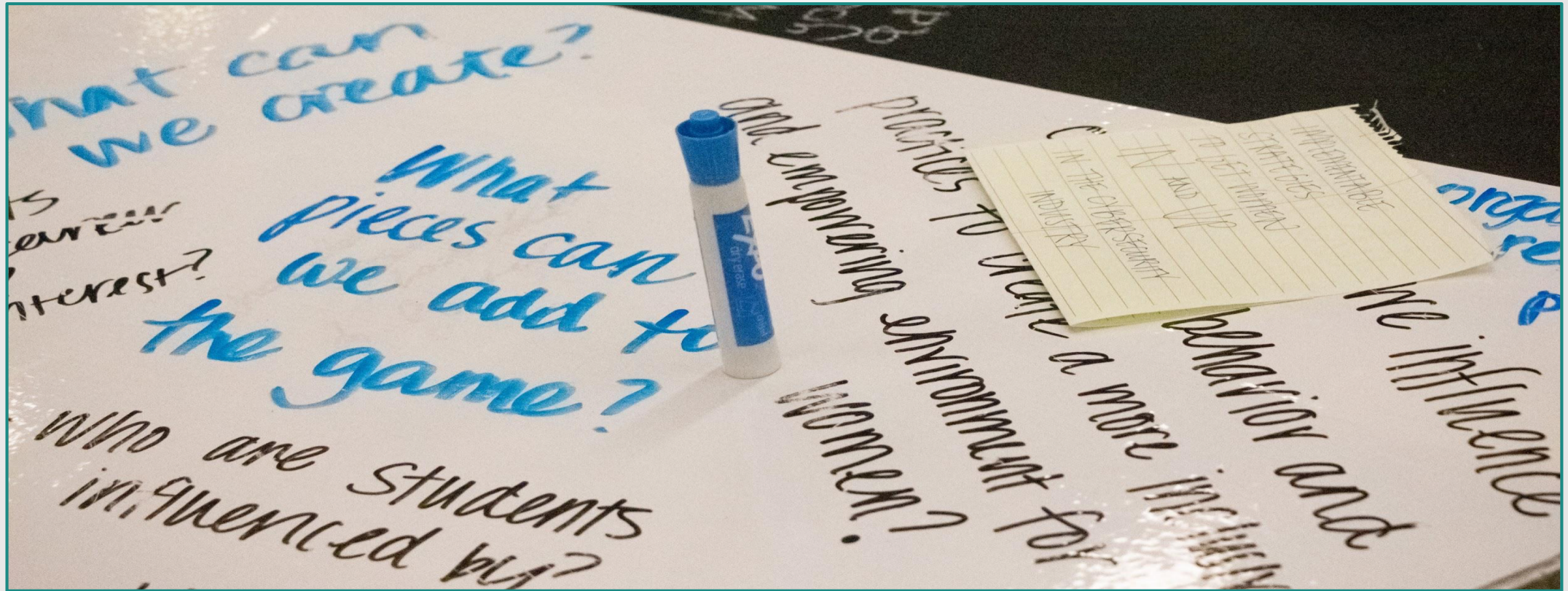
- **Project:** Convening of experts and written resources
- **Goals:** Make the event “different”

External
Strategist

Broad
range of
expertise

Concrete
plan for
action

Resources



www.newamerica.org/women-in-cybersecurity

Report: Major Themes



Engage with
Business

Empower the
Coordinators

Change the
Narrative

Community Scan


Name of Program	Brief Description	URL	K-12 Educators	K-12 Students	Parents	Post-Secondary Educators	Post-Secondary Students	Job Seekers	Early-Career Employees
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(ISC)2 Cybersecurity Workforce Reports	Annual report on the cybersecurity workforce including data on female participation	Link							
AAUW Hands-On STEM Resources for Girls	Downloadable resources and regional and national programs for girls	Link	✓	✓	✓				
All Raise	Support/increase numbers of female founders/VC funders in tech	Link							✓
AnitaB.org	Organization to connect, recognize, and promote women in technology	Link	✓			✓	✓	✓	✓
Association for Computing Machinery - Women (ACM-W)	Organization to advance the contributions of technical women within the ACM professional association	Link				✓	✓	✓	✓
Black Girls Code	Coding lessons for girls of color ages 7 to 17 and other community outreach programs	Link	✓	✓	✓				
Computing Research Association Women (CRA-W)	Mentoring and support for women in computing research	Link				✓	✓	✓	✓
CybHer	Camps, clubs, and other programming for K-12 and collegiate girls and women	Link	✓	✓	✓	✓	✓		
Cyber Patriot	Cybersecurity competition for middle and high school students (not exclusive to women)	Link	✓	✓	✓				
Cyber Shikshaa	India-based training program in cybersecurity skills for women engineers ages 21 to 26	Link						✓	✓
CyberCorps	Undergraduate and graduate scholarships with a government service term (not exclusive to women)	Link	✓		✓	✓	✓		
CyberTech Girls (CTG)	Event series teaching 7th to 12th grade girls about cybersecurity	Link	✓	✓	✓				

- **Find:** Scholarships, organizations, conferences, and other resources to help women in cybersecurity
- **Select:** Sheet is sortable by user type to surface relevant resources
- **Contribute:** Did we miss something? Send it to bate@newamerica.org


One-Page Resources

Find implementable ideas for:

- K-12 educators
- Higher education leaders
- Hiring and human resource managers
- Cybersecurity leaders
- Partners outside cybersecurity

CYBERSECURITY INITIATIVE 

What can K-12 educators do to bring more women and girls into and up through cybersecurity?



Ask Better Questions:
Ask students, "what kinds of problems would you like to solve?" rather than, "what do you want to be when you grow up?" to help encourage thinking about technology and cybersecurity career paths. Such questions will help students who value contributing to communal goals and helping others reflect on the social impact of career paths in technology. Consider using strong female characters from fictional technology roles, like on the TV show *NCIS* or *Bones*, to depict the problems that can be solved.

Cybersecurity is Everywhere:
Incorporate cybersecurity as an element of popular extracurriculars like sports or drama. Does the team have a social media presence or a payment system for tickets? Encourage students to investigate how those systems are secured and what improperly secured systems might mean for their team. In order to shape and deliver content, partner with organizations familiar with youth activities, like 4-H or the Girl Scouts, that have experience developing computer science or cybersecurity-specific programs and badges for young learners. Understanding how cybersecurity contributes to the group's overall goals can help create enthusiasm for careers in the field.

Earn College Credit in Cybersecurity:
Encourage high schools to develop advanced courses in cybersecurity, using language in course descriptions and other course materials that is in line with best practices for how to attract and engage more women students. Work with the College Board and the International Baccalaureate to design exams to award college credit for these courses.

Teachers are Learners Too:
Sponsor teachers to attend cybersecurity courses or earn certificates, so that they are equipped with the latest information to teach students. Make resources about coding clubs and cybersecurity camps available to students, too.

Expand the Cybersecurity Club:
Create a new cybersecurity club if your school does not yet have one. Task the students with figuring out how to engage more of their peers in the club. Exposure to the subject in a socially supportive environment—and early in education—can create excitement for careers in the field among students who might otherwise dismiss the possibility. Simple things like cool graphics and a name that echoes themes from popular culture can be used to attract participants.

Show Cybersecurity's Impact on Communities:
Turn a real-world community problem into a cybersecurity competition. This encourages students to explore the link between the technology, its impact on people's lives, and the ability to be creative. Give prizes to students who win intramural programs, or work with existing programs (for example, eCybermission) to compete with teams from other schools.

Cultivate Growth Mindsets:
Research suggests that girls sometimes need different kinds of feedback to succeed in STEM classes and can get discouraged if they fail. Consider training teachers in how to encourage a growth mindset among those students. In other words, teaching them that their abilities in math and science are not innate, but can be developed over time, and that failure is not weakness, but an opportunity to get stronger.

Introduce Female Role Models:
As the saying goes, you cannot be what you cannot see. Show students what women in cybersecurity look like by bringing in guest speakers, integrating women's stories into history lessons, or even featuring video clips of fictional female technologists from TV solving relevant problems.

To learn more about the Cybersecurity Initiative, please visit newamerica.org/cybersecurity-initiative.

Q & A

Women in this field say it's actually fun, and they're having a good time. They are feeling they are doing meaningful and impactful work and it's deeply satisfying to them. You don't necessarily have to have a computer science degree to contribute.

Be flexible. Technology moves so fast—each new innovation leads to new opportunities. The career that I have now did not even exist when I started out in this world. If you remain flexible, you can take advantage of opportunities that come your way.

MEG LAYTON, SYMANTEC

CAROLINE WONG, COBALT.IO

Thank You for Joining Us!

Upcoming Webinar: Tools in the Federal Cybersecurity Workforce Toolbox

When: Wednesday, May 15, 2019 at 2:00pm EDT

Register: <https://nist-nice.adobeconnect.com/webinar-may2019/event/registration.html>

nist.gov/nice/webinars