# Welcome!



Photo credit: Kapor Center for Social Impact

SciGirls massa Google

- Please introduce yourself, organization, and Collaborative in the chat box.
- What does 'intersectionality' mean to you?

AccessSTEM

February 13, 2019





# Agenda

- Addressing the Double-Bind: Improving Outcomes for Girls of Color in STEM and Computing
- Facilitated Discussion
- Successes and Challenges
- Closing



Photo credit: Kapor Center for Social Impact



# **Dr. Allison Scott**



## Chief Research Officer, Kapor Center for Social Impact





# Addressing the Double-Bind:

Improving Outcomes for Girls of Color in STEM & Computing



Allison Scott, Ph.D.

National Girls Collaborative Project

February 13, 2019







## **DR. ALLISON SCOTT**

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- Women of Color: The term "women of color" requires careful definition and contextualization for proper use, both in terms of who is included in the definition and why the term is needed to distinguish women of color as a particular subset of the population. The categories of "women" and "people of color" are numerically marginalized gender and racial/ethnic groups in computing (and oftentimes face social disparities and inequity in broader American society). Intersectionality theory describes women of color as experiencing both intersecting identities which exist within structures of power and privilege to compound marginalization by both race/ethnicity and gender. To specifically examine this category, a broad definition is used to define "women of color" as individuals at least partially identifying as women AND identifying as a member of a racial/ethnic group other than white (specifically, Black/African-American, Latinx/Hispanic, Asian, Native American/Alaskan Native, and Native Hawaiian/Pacific Islander). This category is extremely broad, and experiences of women of color can be vastly different based on context and additional intersectional identities including, socioeconomic status, physical ability, sexual orientation, age, religion, immigration status, schooling background, parenting/caregiving status, linguistic background, nation of origin, etc. Where possible, this project will examine and identify experiences of women of color based on intersections with other identities. This project focuses on women of color within the social, cultural, and historical context of the United States, while understanding significant differences exist in definitions, histories, and experiences of women of color across the globe.
- **Underrepresented Women of Color:** Underrepresented women of color are distinguished in this project as women from racial/ ethnic groups who are traditionally underrepresented in computing education, degree completion, the tech workforce, and entrepreneurship/VC, in comparison to their representation in the U.S. population and representation among potential pools of candidates (e.g., the total labor force, CS degree-earners). Underrepresentation varies across computing contexts and it is necessary to specify the domain in which underrepresentation is present when categorizing underrepresented women of color. Specifically, Black, Latinx, American Indian/Alaskan Native women are underrepresented across the pipeline, in participation in computing education, completion of computing degrees, participation in entrepreneurship and venture capital, and Asian women as a whole are overrepresented in K-12 computing education and within the tech workforce, but underrepresented in leadership positions within the technology workforce.
- **Gender:** Understanding that gender is a socially constructed identity and that there is great diversity within gender identity and expression, this project focuses on individuals who at least partially identify with an identity of "female," "woman," "girl," "feminine," "womxn" or similar descriptors and identities. Additionally, we intentionally include transgender women, and non-binary individuals within the gender group of focus in this project, as we are most interested in the non-majority gender group within computing. Within a broader focus on intersectionality, we will aim to identify trends and experiences at the intersection of gender identity and racial identity within computing and acknowledge the diversity of gender identities within the scope of work focused on women and girls of color.



Generational wealth and poverty

- Environmental toxins

Economic, educational, and social policies and practices have created systems of inequality.







Stereotypes, biases, and environments of exclusion affect implicit and explicit practices of gatekeepers and impact individual responses to unfairness.





The intersection of racism and sexism affects women of color in ways that cannot be fully captured by examining race or gender separately, making the experiences of women of color in the computing and tech ecosystem qualitatively different from white women and men of color.

**PEOPLE OF COLOR** 



WOMEN



"Without frames that are capacious enough to address all the ways that disadvantages and burdens play out for all members of a particular group, the efforts to mobilize resources to address a social problem will be partial and exclusionary." – Kimberle Crenshaw







**Dr. Shirley Malcom** 

Women <u>and</u> people of color are underrepresented and marginalized in STEM fields.

The "double-bind" describes the unique and cumulative challenges of racism and sexism experienced by women of color in STEM fields.



#### Intersectionality and the "Double-Bind"



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SMASH =

- 8 sites across five states: (UC Berkeley, Stanford, UC Davis, UCLA, Morehouse, Wharton, Wayne State, Illinois Institute of Technology)
- **5** week, **3** summer residential program + alumni programming
- 95% underrepresented students of color, 51% female, 72% FRPL-eligible, 73% First-Gen College
- Over **1,000** current students and alumni



SCIENCE : TECHNOLOGY : ENGINEERING : MATH







Girls of color anticipate **facing greater barriers** in pursuing STEM studies than their male counterparts...which negatively affects their interest and aspirations to major in STEM.

Citation: Scott & Martin (2014)







A CS intervention --consisting of a 3-year course sequence, culturally relevant curriculum and pedagogy, exposure to diverse role models, peers and instructors, and leadership development activities--significantly and positively increased the interest, attitudes, and aspirations of girls of color in computing.

Citation: Scott et al., (2017)







Yet, despite the rigorous multi-year CS intervention (and equal levels of content knowledge and ability), girls of color remain less likely to pursue CS majors than their male peers.





We spent a year experimenting with the approach of the program, intentionally aiming to close the gender gap in CS.

- Piloting single-gender classrooms
- Messaging affirmations of belonging
- Increasing diversity in instructors

# In 2018, the gender gap in SMASH CS was eliminated!



- **Pedagogy**: Effective teaching practices and approaches that address implicit bias, set high expectations, and deliver engaging instruction
- **2** Curriculum: Engaging, project-based, and culturally relevant curriculum which aligns content to non-CS/STEM interests and identities AND is rigorous
- **Role Models:** Providing girls with access to instructors, mentors, industry professionals to identify with and aspire to
- **Collaboration and Peer Learning:** Within-network effects were powerful and girls often felt increased support and confidence when in single-gender contexts
- **Youth Development**: Supporting girls' identity development, growth-mindset, confidence building, stereotype reduction, leadership development, and agency

\*tailored to environment, context, culture of the youth being served.



## Addressing Intersectionality:

Program Design, Development & Implementation



- Which specific barriers are you addressing?
- Are you being explicit and intentional about addressing intersectional barriers?
- How are you measuring the effectiveness of your strategies (are they working?)





## Women of Color in Computing: Researcher-Practitioner Collaborative



<u>AIM:</u> To build a body of literature on women of color in computing and develop, test, and scale strategies for improving outcomes for women of color across the tech ecosystem.

### www.wocincomputing.org



#### KAPOR CENTER

pivotal

#### DATA BRIEF: Women and Girls of Color in Computing

#### TECHNOLOGY AND THE GLOBAL ECONOMY

Technology is a significant driver of economic growth and lopment across the globe (Dutta, Geiger, & Lanvin, 2015). As a global leader in technological innovation and advancement, technology plays a critical role in the United States economy and workforce, with nearly one-quarter of the country's total economic output produced by high-tech industries (Bureau of Labor Statistics [BLS], 2016, 2017) and nearly 1 million job openings projected in computer and information technology over the next 10 years (BLS, 2017). In addition to being among the fastest-growing, computing occupations are also among the most economically lucrative, with median salaries more than twice the median wage for all other occupations (BLS, 2015b) and significant wealth being created by technology creators and investors (CB Insights, 2017). Yet, the technology workforce is not representative of the diversity of the United States population, with the vast majority of individuals employed in computer and mathematical occupations being nite (63%) and male (75%; BLS, 2015). To ensure the future economic growth and prosperity of the United States, developing a robust, skilled, and diverse national workforce will be essential. Simultaneously, increasing equity in economic opportunity and decreasing inequality will be directly linked to the preparation of individuals from marginalized and underrepresented communities to participate in the rapidly evolving technology economy. Thus, the current and pervasive lack of racial/ethnic and gender diversity in the technology ecosystem presents a significant national challenge.

#### KEY FINDINGS • Women of color currently constitute 39% of the female

Identified population in the United States, and will comprise the majority by 2060. Just 4% of all high school students taking AP Computer Science were Latins girls, 2% were Black girls, and <1% were Native American/Alaskan Native girls.

 In 13 states, not a single Latinx or Black female high school student took an AP Computer Science course
 Women of color make up less than 10% of all Bachelor's degrees earned in computing, and Latinx women are most underrepresented in computing Bachelor's dearee completion rates relative to their population in

postsecondary education • Women earn 21% of all doctorates in computer science; however, less than 5% are awarded to Black, Latinx, Native American/Alaskan Native, or Native Hawailan/ Pacific Islander women

Among all women employed in computer and information science occupations, only 12% are Black or Latinx women; In Silicor Valley, less than 2% of the workforce is comprised of Black, Latinx, or Native American/Alaskan Native women.

While white women and Asian women participate in roughly equal rates in the overall workforce, Asian women are significantly less likely to be in leadership positions is the set of the

Women of color, specifically Black and Latinx women, are the fastest growing group of entrepreneurs and account for 80% of the new women-led small businesses, but in tech, Black women account for less than 4% of all female-led startups.

## **Priority Research Areas:**

- Entry, Persistence, and Advancement in Computing in Higher Education
- Participation of WOC across the Technology Workforce
- Women of Color in Entrepreneurship and Venture Capital

#### **Research Projects:**

- 13 current projects underway
- Research findings to be disseminated in 2019
- Media/social media representation of WOC in computing

## www.wocincomputing.org



# Thank you!



Please keep in touch and let's collaborate!

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For more information about research and programs check out:

kaporcenter.org & smash.org

For more information about the Women of Color in Computing Collaborative, check out:

wocincomputing.org



# NATIONAL GIRLS COLLABORATIVE PROJECT

# Successes? Challenges?







Girls

# **General NGCP Updates**

- Paramount Pictures' WONDERPARK
- March is National Women's History Month, stay tuned for NGCP highlights!







# **General NGCP Updates Continued**

- Twitter Chat: "Leap into Science: Engaging Communities in Science and Literacy Learning" on February 27 at 11:00AM PST/2:00PM EST using #LeapWeek
- The Connectory
   promotion





Girl

## Next Collaborative Leadership Teams Meeting: March 13, 2019





