

Women of color continue to be vastly underrepresented in computer science education and careers despite significant investments and initiatives from the public and private sectors to broaden participation. To understand the persistence of racial and gender inequities in computing and to advance solutions, scholars and practitioners with the Women of Color in Computing Collaborative (WOCCC), a partnership between the Center for Gender and Equity in Science and Technology (CGEST) at Arizona State University and the Kapor Center, have spent the past several months conducting research on various aspects of this troubling issue. Their efforts yielded 13 independent projects and policy memos that have added to the scant research in this field of study and greatly expanded our knowledge of the ways in which inequity in Computing is maintained but can also be redressed.

With a focus on girls and women of color, the WOCCC projects addressed Computer Science interest and degree completion, tech workforce participation and advancement, entrepreneurship and securing access to capital. Each of these topics may seem distinct yet the factors that contribute to inequitable opportunities and experiences for girls and women of color in Computing are essentially the same: systemic racism, gender bias, and other compounding factors over decades in k-12 and higher education, industry, and finance. Sustained, concerted efforts must be made across all these sectors, at the same time, in order to achieve more just and equitable outcomes in Computing for girls and women of color. Encouragingly, recommendations from the WOCCC projects offer many ways for key influencers and policymakers to engage in the process of bringing about meaningful progress.

2% of awarded bachelor's degrees in Computer Science are to Latinas while Black women receive **3%**

HBCU's **2.5X** more likely to graduate women of color with computing degrees

Selected Recommendations

Computer Science Interest and Degree Completion

To support Latinas in Computing, create **institutional policies** and programs that **enhance belonging** like leveraging familial capital, formalizing mentorship programs, and **expanding funding** for ethnic and gender specific CS conferences.

To encourage Native American women and two-spirit individuals to pursue and persist in CS majors, **validate and integrate Native culture** and science in the curriculum and demonstrate how CS can **promote social equity and cultural integrity**.

To engage Black and Latina youth in STEM, **shift resources** to attract and retain highly qualified STEM teachers and invest in STEM curriculum and materials that reflect the gender, racial, and ethnic diversity of public school students.

To advance equity for women of color in tech, require STEM faculty and advisors to complete training in **systemic racism, unconscious bias, and intersectionality** so they are more aware of the systems that contribute to inequities and better positioned to structure their courses to support women of color.

Calculus classroom environments **marginalize** Black & Latina women contributing to **ATTRITION** in computing and engineering majors.



To sustain Black women's participation in the field, addressing issues of access is not enough. **Those with power must do the work** to transform the field by building coalitions, **mentoring**, and maintaining relationships with Black women.

To recruit more women of color, consider the way job postings may discourage non-traditional yet qualified candidates from applying for positions and work with HR to **incorporate more inclusive language** centered around skills and experience, rather than disciplinary background and training.

To increase the productivity of women of color in the tech workplace, use **Bias Interrupters** to create equitable workplace experiences so that women of color can focus more on their core responsibilities and spend less time on undervalued admin and D&I work as well as **managing biased perceptions** of their appearance and competence.

Holding counter-stereotypical views of scientists is a **strong predictor** of a student's intentions to pursue a STEM major. Black female students held the most **counter-stereotypical views** of scientists.

To advance and promote women in color in tech, ensure women of color have appropriate resources to successfully do their jobs, have **access to mentors and sponsors** within the company, and ensure managers have proper training to **provide unbiased, fact-based, ongoing, and actionable feedback** to employees.

Entrepreneurship and Access to Capital

To expand opportunities for Black women tech entrepreneurs to launch businesses, **increase exposure** to debt-based financing, equity crowdfunding, and access points to start-up space.

To reduce barriers causing funding disparities women of color STEM female entrepreneurs of color, startup incubator and investment firms should: **Broaden networks, outreach, and deal sourcing** strategies to make explicit efforts to reach tech entrepreneurs from diverse backgrounds; **Remove arbitrary selection criteria** or decision-making that disadvantage entrepreneurs of color; **remove "weed-out" philosophy** from your program culture, operations, and curriculum to focus on engaging entrepreneurs through **holistic support and flexible design**.

Pilot Study Leads to Change

After a study demonstrated how women of color in humanities can use perspectives, experiences, and backgrounds to support the development of localized, user-centered technologies, the English Department at UT El Paso created an undergraduate major in User-Experience.

In a survey of 111 female tech founders, results revealed that **Black women founders had access to less than \$5,000 pre-launch while White women founders had access to more than \$50,000 pre-launch.**

Less than **1%** of venture capital is awarded to women of color

Tech Workforce Participation and Advancement

THE FINDINGS SUMMARIZED IN THE ABOVE RECOMMENDATIONS WERE AUTHORED BY THE FOLLOWING WOCCC GRANTEES:

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