

Make High School Computer Science Education Equitable

Wintana Eyob

February 8, 2022



Background

Khan Academy provides students tools to better their lives and the world. However, many have not utilized our resources. It is not enough to make free, world-class education available to all. We must also strive for educational equity. Specifically, in the growing field of computer science.

81% of computing professionals are White and Asian (Data USA). To prevent unethical technological developments, it is crucial that computer engineers represent the American population. Furthermore, IT and computing salaries are 120% more than the U.S. average of \$42,000 (U.S. Bureau of Labor Statistics). Diversity in computing will lead to more opportunities for upward mobility (Amazon-Gallup).

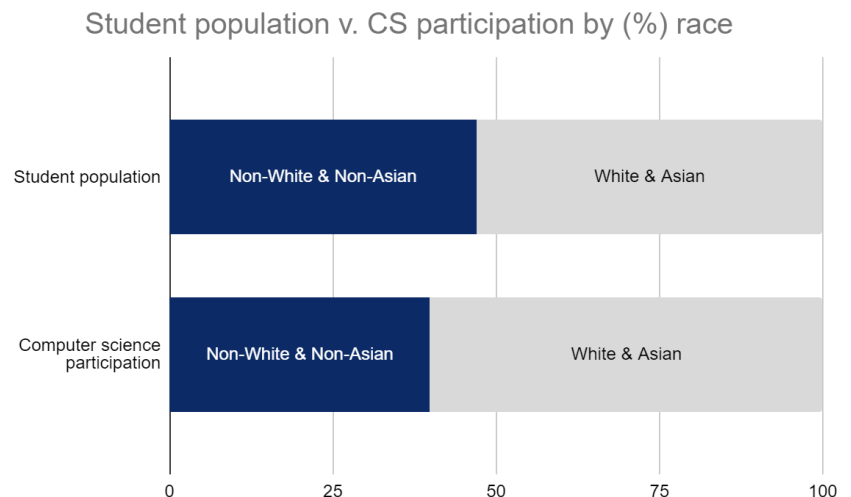
This racial gap is not because of underrepresented groups' lack of interest in tech (Forbes). Rather, people of color encounter three (3) main disparities:

1. Access to computer science courses;
2. Representation in the media;
3. Exposure to computers & tech professionals.

To improve diversity in the tech industry, we need to make high school computer science education equitable. Focusing on high school classrooms will inspire the future leaders of the world to enter computing professions.

Key findings

White and Asian populations dominate the computing industry, and that is reflected in computing education. 53% of students are either White or Asian, and 60% of them have taken a computer science class (Code.org). 47% of students are neither White or Asian, with 40% of them participating in computing (Code.org).



Increase access

White students are 8% more likely (73%) than Black students (65%) to have computer science classes at their school (Forbes). In cities that are separated by race, White students (88%) have a

21% higher chance of access to computer programming courses at their school, when compared Black students (67%) (Forbes).

This lack of access is one contributor to the lack of diversity in the tech industry and computing education, alike. Many students of color do not have the opportunity to learn programming through their high school. Since learning at a high school is the pathway for many into computing, it is important to make in-person computer science education more accessible for all.

Increase representation

Nearly a quarter of students report often seeing people in the media computing (Google-Gallup). And, 16% of students often see people of their race associated with computer science in the media (Google-Gallup).

The media often portrays computer scientists as extremely smart, nerdy-looking, White or Asian men (Wang). They often lack social skills, and primarily focus on their computer (Wang). This saturated representation can discourage great computer scientists from attempting to code.



Conversely, students who often see people of their race in tech in the media are more likely to be very interested in computer science (Google-Gallup). It is crucial that we expand the media's portrayal of technologists. IT professionals can come in different races and genders than their stereotypes. We must work to help more students be represented in these media portrayals of computer scientists.

Increase exposure

Students who regularly use computers have a high chance of being very interested in computer science (Google-Gallup). Black and Hispanic students are more than 10% less likely than their White peers to use a computer at home most days of the week (Google-Gallup). Computer use in the school had similar figures (Google-Gallup). It is important to encourage students to use computers more regularly, as this will result in higher interest in computer science.

Furthermore, students who personally know someone who works in tech have a higher interest in CS than their peers (Google-Gallup). The majority White and Asian workforce in IT is reflected in why less students of color know someone who works with computers. We cannot change tech industries' policies to hire more technologists of color, but we can equip future technologists of color.

Students introduced to CS in high school are more likely to take programming courses in college (Code.org). It is important to expose students of color to computer science by the time they are in high school. In addition to motivating them to take more computing courses in college, this will give them a good foundation for their future courses.

Conclusion

Khan Academy needs to encourage underserved high school students toward computing. We can do this by addressing the lack of:

- Access to computer science courses at schools
- Representation of computer scientists of color in the media
- Exposure to computers & tech professionals in personal life

The tech industry has claimed to want more diversity, yet it remains primarily White and Asian (Consumer News and Business Channel). Unless we make a change, there is no guarantee for an improved tomorrow. Consumers are frustrated (Alidina). [Educators are frustrated](#). Technologists are frustrated (O’Neil). Although we are not to blame, we can make a difference. Our initiatives can inspire and prepare the next generation of programmers of color.



Recommendations

Although we are not responsible for the racial disparities in tech, we have the platform to make a difference. Khan Academy should create new initiatives to make high school computer science education equitable. The following recommendations will help achieve that goal:

- Bring computer science education to underserved school districts at free or reduced cost
- Broadcast advertisements to encourage computing with public figures of color
- Provide laptops to students at underprivileged schools

Students, consumers, and employers alike will benefit from our changes. It is crucial that we lead the change toward more equitable high school computer science education. Our contributions will hopefully inspire others to follow in our steps.