Rhode Island

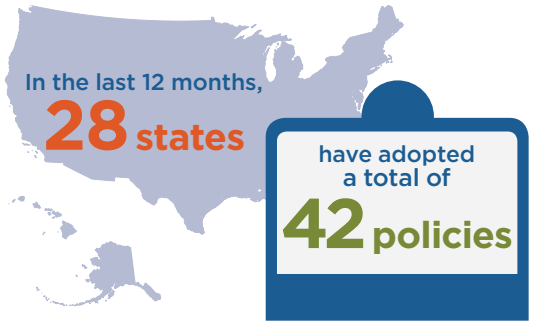
2020 State of Computer Science Education: Illuminating Disparities

Computer science education is more important than ever. The COVID-19 pandemic has highlighted our society's reliance on computing and its power to help businesses innovate and adapt, yet at the same time has surfaced greater disparities for students studying computer science. Computing is the number one source of all new wages in our economy, and there are currently 400,000 open computing jobs across the United States. Yet the U.S. education system does not provide widespread access to this critical subject.

Although access to computer science is key to addressing the equity issues in society, only 47% of our nation's high schools teach foundational computer science. In addition, students from marginalized racial and ethnic groups, students in Title I schools, and students from rural areas are less likely to attend a school that provides access to this critical subject.

States are working to broaden participation in computer science by passing policies to make computer science a fundamental part of the K–12 education system. In addition to adopting more policies, state education leaders extend and innovate on previously adopted policies: continuing to fund computer science education, supporting teachers and students, and providing leadership and guidance.

States that have adopted more of these nine policies have a larger percentage of high schools teaching computer science. States that have funded K–12 computer science professional learning have higher implementation rates than states that have not provided direct funding.



Pursuing an access agenda to K–12 computer science provides policymakers a rare opportunity to address equity, workforce, and education issues on a bipartisan basis. All nine policies can promote access to and equity within rigorous and engaging computer science courses when stakeholders make equity an explicit focus on policy development and implementation monitoring.

Nine Policies to Make Computer Science Fundamental

1. Create a state plan for K–12 computer science
2. Define computer science and establish K–12 CS standards
3. Allocate funding for CS teacher professional development
4. Implement clear certification pathways for computer science teachers
5. Create computer science preservice programs at IHEs
6. Establish dedicated state computer science positions
7. Require that all secondary schools offer computer science
8. Allow computer science to satisfy a core graduation requirement
9. Allow CS to satisfy admission requirements at IHEs

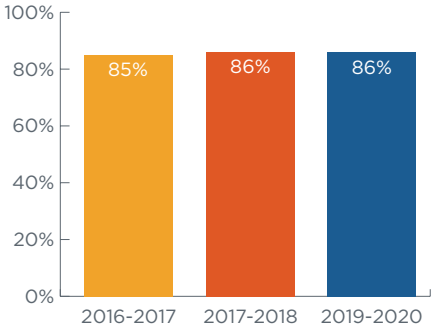
Rhode Island Computer Science Policy

State Plan Yes	CS4RI (a partnership between the Governor's office and the Rhode Island Department of Education) created a state plan for computer science education implementation. One of the goals of the plan is to broaden participation among populations that are underrepresented in computer science.
Standards Yes	Rhode Island adopted K–12 computer science standards in 2018. Standards within each grade band address concepts of equity, such as bias, accessible technology, and inclusivity. Additionally, standards can be met without computing devices or with limited hardware access, making implementation possible for all schools.
Funding Yes	H 5151A (FY 2020), H 7200A (FY 2019), H 5175 (FY 2018), and H 7454 (FY 2017) allocated $210K annually for computer science professional development. Grants focus on broadening participation, and priority is given to Title I-eligible schools. The Department received a $2.5M federal grant to support the creation of high school computer science pathways that incorporate work-based learning. for historically underserved and underrepresented populations.
Certification Yes	In Rhode Island, teachers with existing licensure can obtain an endorsement through academic coursework from an approved provider.
Preservice No	Rhode Island has not yet established programs at institutions of higher education to offer computer science to preservice teachers. The computer science teacher shortage can be addressed by exposing more preservice teachers to computer science during their required coursework or by creating specific pathways for computer science teachers.
CS Supervisor Yes	The Rhode Island Department of Education has a core team advancing the goals of CS4RI, including the Digital Learning Specialist, CS4RI High School Grant Project Manager, and CS4RI Work-Based Learning Specialist.
All HS Offer Other	Rhode Island does not yet require that all secondary schools offer computer science. However, the CS4RI initiative and the Governor's office set a goal for all students to have access to computer science courses by the end of 2017.
Grad Credit Yes	In Rhode Island, computer science can count as a mathematics or science credit for graduation.
IHE Admission No	Rhode Island does not yet allow computer science to count as a core admission requirement at institutions of higher education. Admission policies that do not include rigorous computer science courses as meeting a core entrance requirement, such as in mathematics or science, discourage students from taking such courses in secondary education. State leaders can work with institutions of higher education to ensure credit and articulation policies align with secondary school graduation requirements.

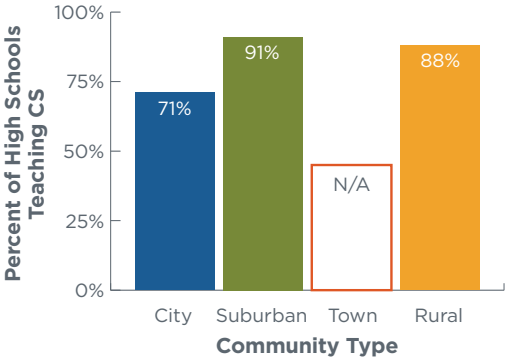
Rhode Island is a member of the ECEP Alliance, has a CSTA chapter, and Governor Gina Raimondo is a member of the Governors' Partnership for K–12 Computer Science.

Computer Science Access and Participation in Rhode Island

High Schools Teaching CS



Percent of High Schools Teaching CS by Community Type

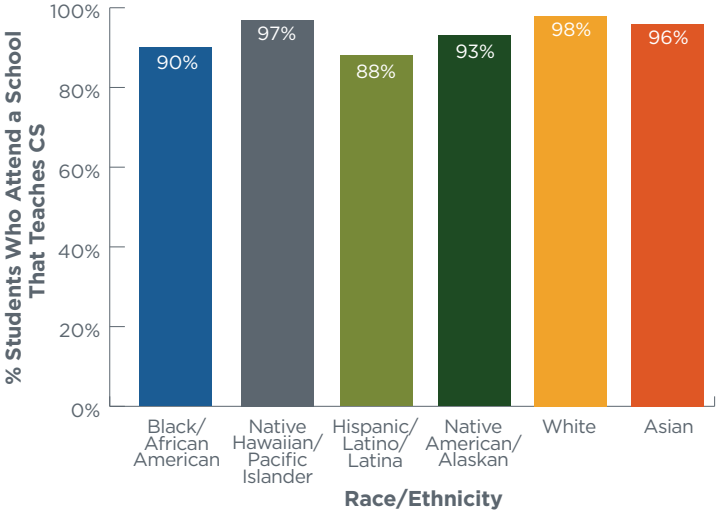


Rhode Island has averaged **1,760** open computing jobs each month*

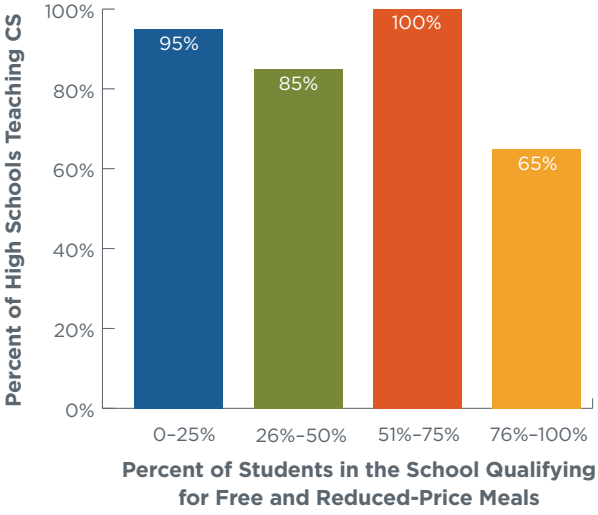
438 Bachelor's degrees in 2018 in Rhode Island*

*Sources: The Conference Board and the National Center for Education Statistics

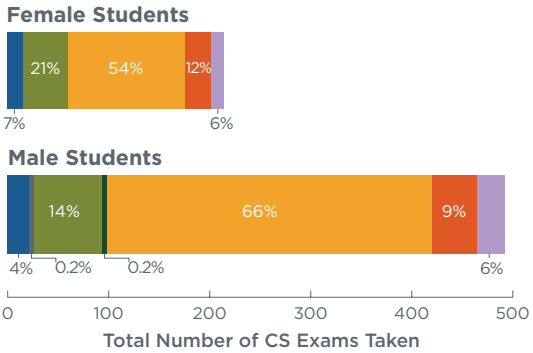
Race/Ethnicity and Access to Computer Science



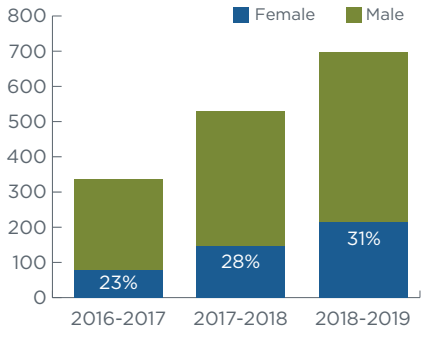
Income Level and Access to CS



AP CS Participation by Race/Ethnicity and Gender

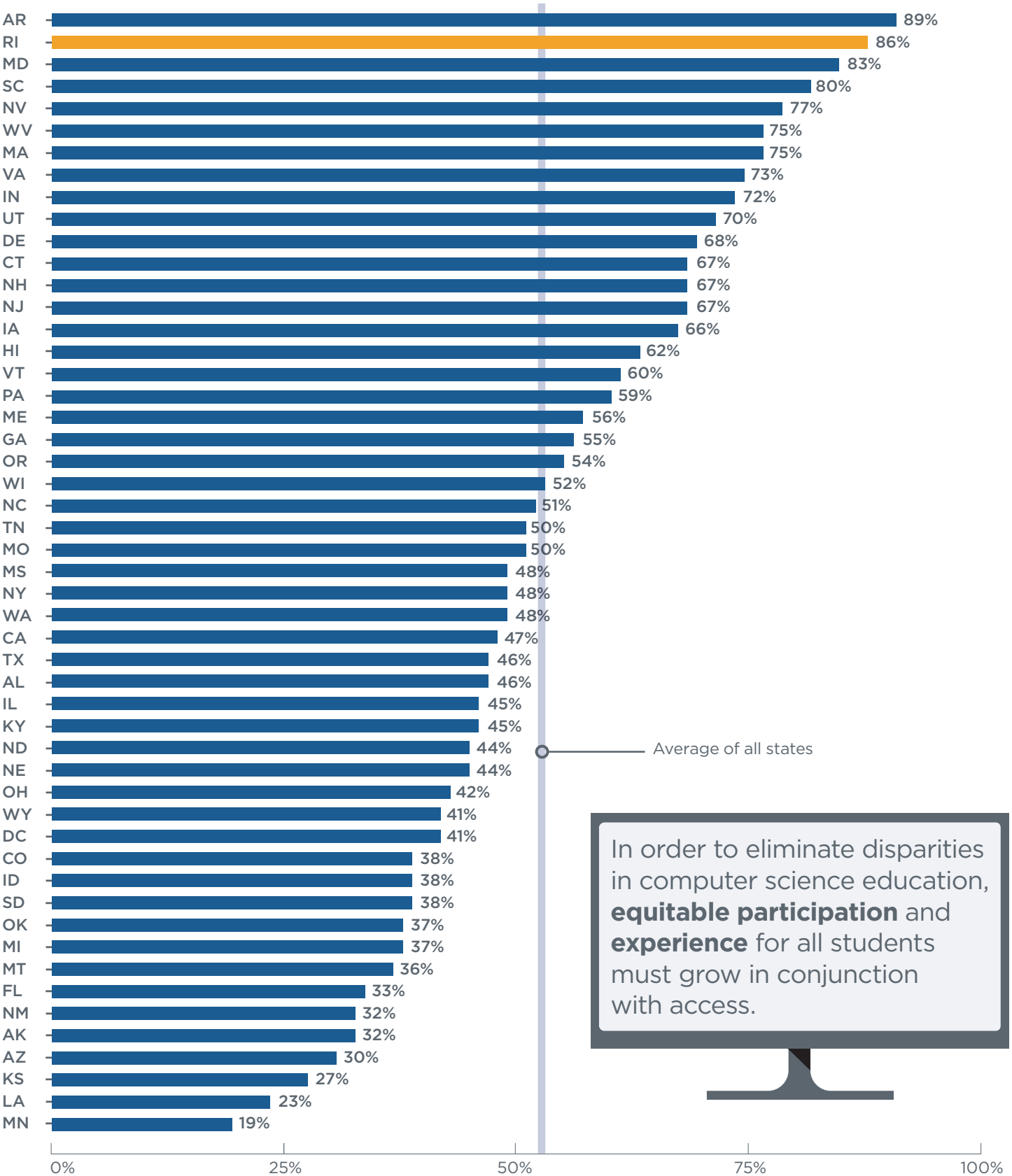


AP CS Student Participation



Hispanic/Latino/Latina and Native American/Alaskan students are each 1.6 times less likely than their white and Asian peers to attend a school that offers AP CS. Black/African American students are 1.3 times less likely than their white and Asian peers to attend a school that offers AP CS and 1.4 times less likely to take an AP CS exam when they attend a school that offers it.

Percent of High Schools Teaching Computer Science by State



In order to eliminate disparities in computer science education, **equitable participation** and **experience** for all students must grow in conjunction with access.

For more details on policy, access, and participation, see the full 2020 State of Computer Science Education report at advocacy.code.org/stateofcs

Advocacy Coalition

ECEP Expanding Computing Education Pathways

CSTA