New Jersey
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.

In the last 12 months, **28** states have adopted a total of **42** policies

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. States should enact or expand on all nine of these education policies in order to provide opportunities for all students regardless of where they live, their race/ethnicity, gender, or socioeconomic status.

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
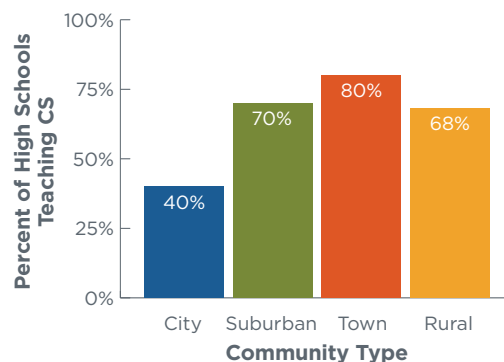
New Jersey Computer Science Policy

State Plan Yes	The New Jersey Department of Education developed a state plan for computer science education implementation in 2019. The plan includes a section on equity and promotes equitable access in the mission and vision statements.
Standards Yes	New Jersey adopted revised computer science and design thinking standards in June 2020. The standards' vision statement focuses on equitable access for all students and fostering their ability to participate in an inclusive and diverse computing culture that appreciates and incorporates perspectives from people of different genders, ethnicities, and abilities. Standards within each grade band address concepts of equity, such as bias, accessible technology, and inclusivity.
Funding Yes	New Jersey's Secondary School Computer Science Education Initiative (PL 2018, Chapter 53) allocated $2M for FY 2019. SB 2500 renewed the $2M appropriation for FY 2020, but was later not included in the revised FY 2020 budget by NJ A3 (20R).
Certification Yes	In New Jersey, teachers with existing licensure can obtain a 9–12 CTE endorsement with a combination of previous teaching experience and academic coursework.
Preservice No	New Jersey 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 In Progress	The New Jersey Department of Education is currently in the process of hiring a Computer Science Coordinator.
All HS Offer Yes	A2873 (2018) required all high schools to offer a course in computer science by the 2018–2019 school year.
Grad Credit Yes	In New Jersey, computer science can count as a mathematics credit for graduation.
IHE Admission Yes	New Jersey 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.

New Jersey has CSTA chapters and Governor Phil Murphy is a member of the Governors' Partnership for K–12 Computer Science.

High Schools Teaching CS

- 2017-2018: 59%
- 2018-2019: 67%
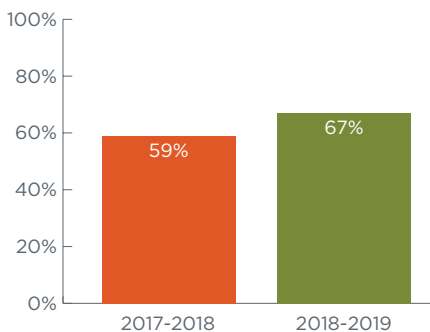
Percent of High Schools Teaching CS by Community Type

Percent of High Schools Teaching CS

- City: 40%
- Suburban: 70%
- Town: 80%
- Rural: 68%

Community Type

New Jersey has averaged **17,394** open computing jobs each month*
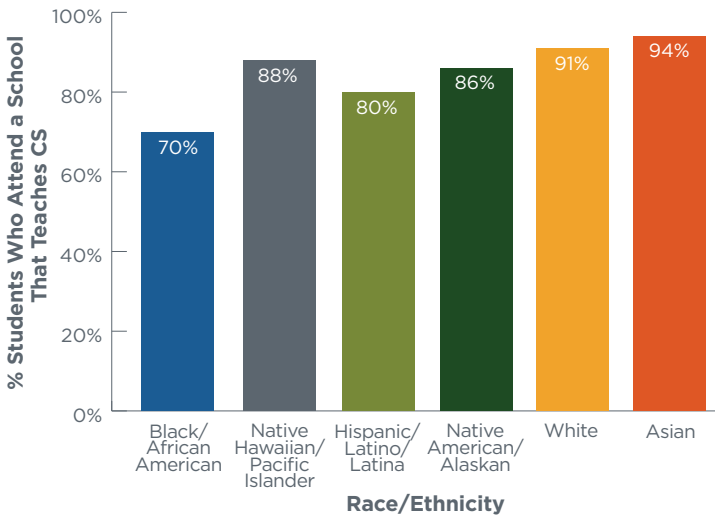
2,002 CS bachelor's degrees in 2018 in New Jersey*

*Sources: The Conference Board and the National Center for Education Statistics
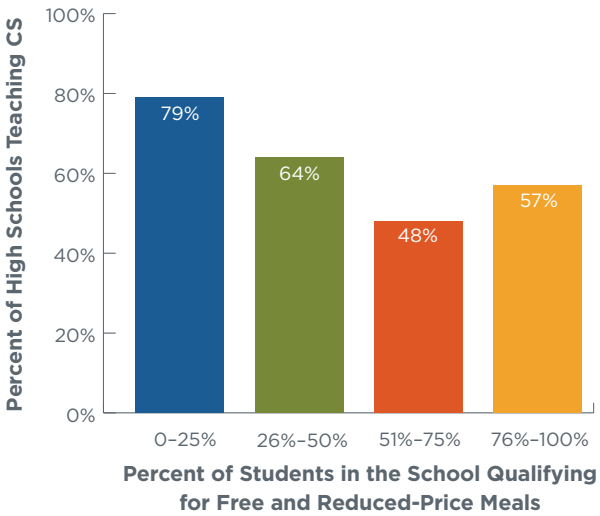
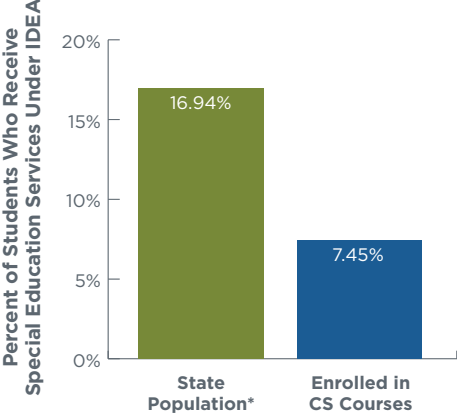# Computer Science Access and Participation in New Jersey
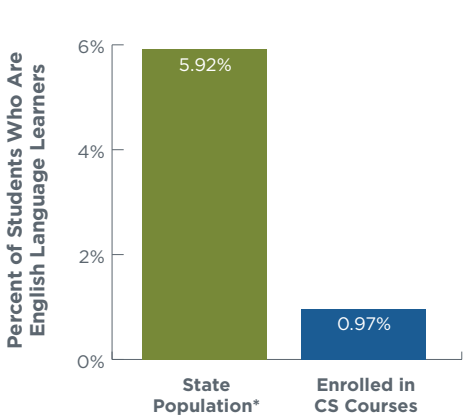
Race/Ethnicity and Access to Computer Science

% Students Who Attend a School That Teaches CS

- Black/African American: 70%
- Native Hawaiian/Pacific Islander: 88%
- Hispanic/Latino/Latina: 80%
- Native American/Alaskan: 86%
- White: 91%
- Asian: 94%

Race/Ethnicity

Income Level and Access to CS

Percent of High Schools Teaching CS

- 0–25%: 79%
- 26%–50%: 64%
- 51%–75%: 48%
- 76%–100%: 57%

Percent of Students in the School Qualifying for Free and Reduced-Price Meals

Students with Disabilities and Participation in CS

Percent of Students Who Receive Special Education Services Under IDEA

- State Population*: 16.94%
- Enrolled in CS Courses: 7.45%

* U.S. Department of Education, Digest of Education Statistics Table 204.70, 2017–2018

English Language Learners and Participation in CS

Percent of Students Who Are English Language Learners

- State Population*: 5.92%
- Enrolled in CS Courses: 0.97%

* U.S. Department of Education, Digest of Education Statistics Table 204.20, fall 2017

Economically Disadvantaged Students and Participation in CS

Percent of Students Who Qualify for Free and Reduced-Price Meals

- State Population*: 37.88%
- Enrolled in CS Courses: 18.67%

* U.S. Department of Education, Digest of Education Statistics Table 204.10, 2016–2017

AP CS Participation by Race/Ethnicity and Gender

Female Students
- 5%, 11%, 0.2%, 0.2%, 37%, 39%, 7%

Male Students
- 4%, 12%, 0.1%, 0.2%, 44%, 34%, 6%

Total Number of CS Exams Taken

LEGEND
- Black/African American
- Native Hawaiian/Pacific Islander
- Hispanic/Latino/Latina
- Native American/Alaskan
- White
- Asian
- 2+ Races/Other
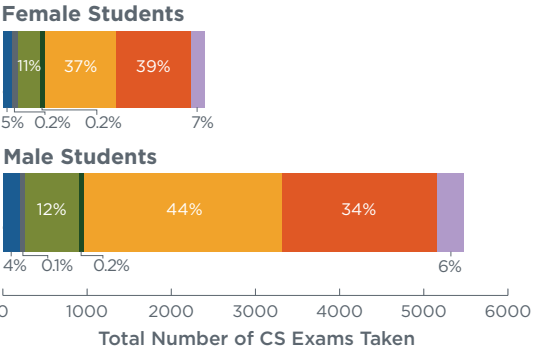
AP CS Student Participation

Female / Male

- 2016-2017: 26%
- 2017-2018: 28%
- 2018-2019: 30%
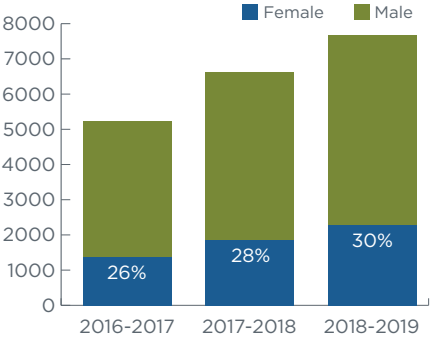
Hispanic/Latino/Latina students are 1.6 times less likely than their white and Asian peers to attend a school that offers AP CS, and 2.3 times less likely to take an AP CS exam when they attend a school that offers it. Black/African American students are 1.6 times likely than their white and Asian peers to attend a school that offers AP CS, and 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

State	Percent
AR	89%
RI	86%
MD	83%
SC	80%
NV	77%
WV	75%
MA	75%
VA	73%
IN	72%
UT	70%
DE	68%
CT	67%
NH	67%
NJ	67%
IA	66%
HI	62%
VT	60%
PA	59%
ME	56%
GA	55%
OR	54%
WI	52%
NC	51%
TN	50%
MO	50%
MS	48%
NY	48%
WA	48%
CA	47%
TX	46%
AL	46%
IL	45%
KY	45%
ND	44%
NE	44%
OH	42%
WY	41%
DC	41%
CO	38%
ID	38%
SD	38%
OK	37%
MI	37%
MT	36%
FL	33%
NM	32%
AK	32%
AZ	30%
KS	27%
LA	23%
MN	19%

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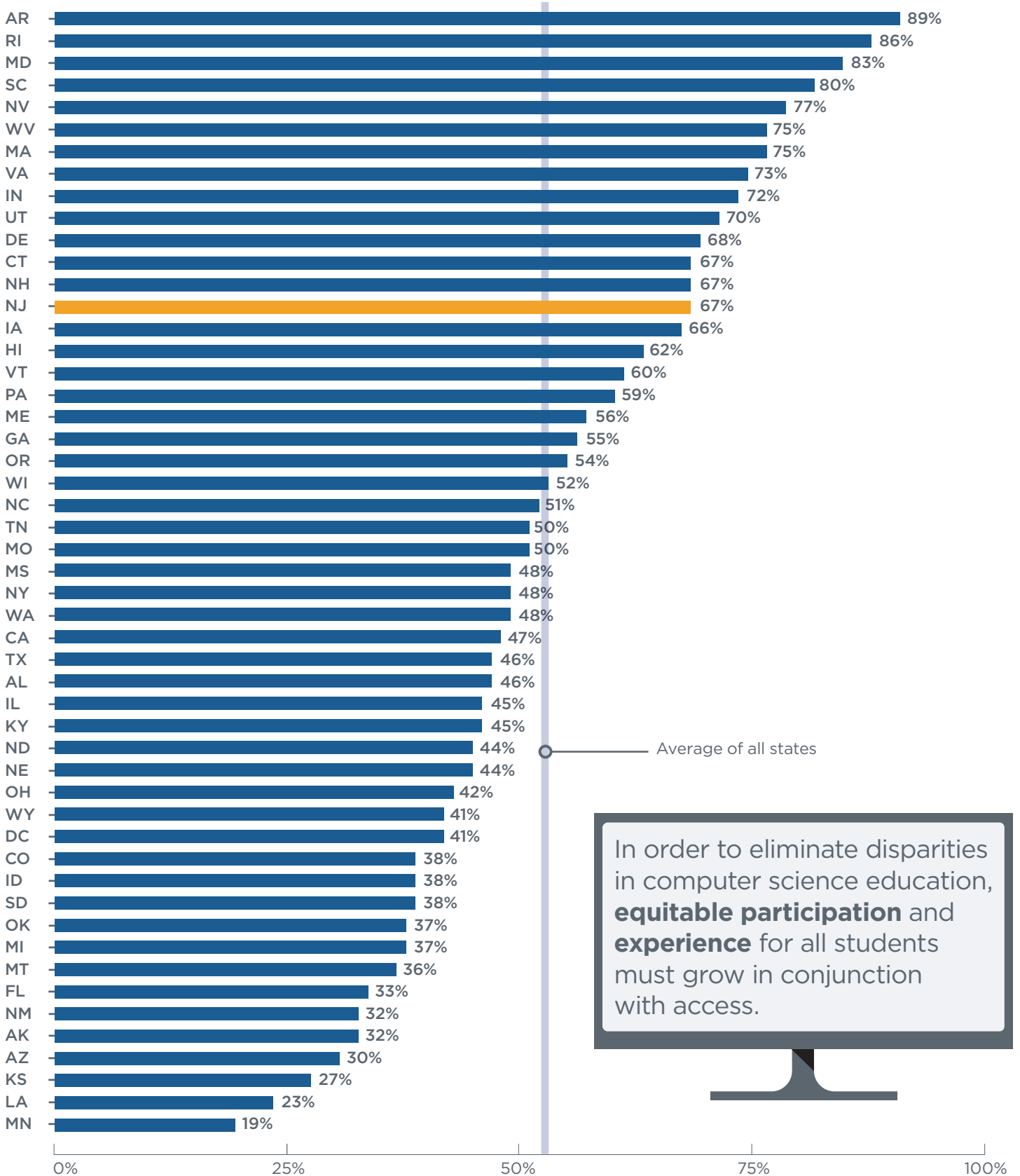
In order to eliminate disparities in computer science education, **equitable participation** and **experience** for all students must grow in conjunction with access.

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

CODE Advocacy Coalition

ECEP Expanding Computing Education Pathways

CSTA