K-12 Computer Science Education

Georgia

This report summarizes the status of computer science (CS) education from a 2014 survey of 9,693 U.S. K-12 school principals. Topics include perceptions, opportunities and participation, as well as support and infrastructure.

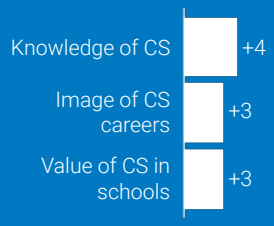
These data are from a multi-year Google-Gallup study of U.S. students, parents, teachers, principals, and superintendents.

g.co/cseduresearch

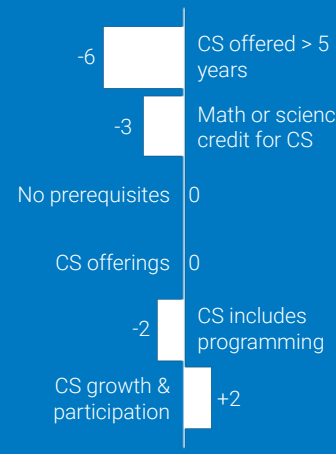
Georgia principals more often correctly distinguished CS from computer literacy and have a positive image and value of CS, compared to the average U.S. principal. They also more likely have afterschool CS, but less likely have CS classes. Overall, a greater percentage report demand for CS in their schools.

Values below indicate percentage point difference from the U.S. average. See back for full data tables.

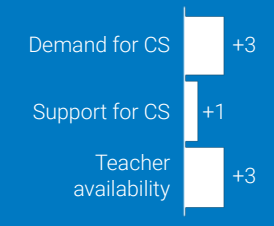
Knowledge & Perceptions



Opportunities & Participation



School Infrastructure



Background

Broadening equitable student access to computer science (CS) is critical to our future, not only because of the increasing demand created by computing-related jobs but also because it develops critical thinking to solve complex problems, creativity to foster new ideas, and skills to drive innovation. To inform progress in ensuring *Computer Science for All*, this report provides a status of CS education and recommendations for Georgia.

Findings

Results from the 2014-15 Google-Gallup study indicate that improvement is needed for Georgia schools to implement CS education for all students.

- **Most confuse CS as basic computer literacy**. In Georgia, only 37% of principals surveyed correctly identified computer literacy activities as *not* computer science (U.S. average 33%).
- **CS offerings are limited**, with 24% of Georgia principals reporting offering CS classes with programming and coding (U.S. average 26%).
- **CS offerings often appeal to and serve a subset of students**. Georgia principals report CS students are mostly White, but slightly more often Black than the U.S. average.

To help prepare schools for CS education, the study also identified challenges to providing CS education for all students in Georgia.

- **Parents' demand for CS is not heard**; 91% of U.S. parents want their child to learn CS, whereas only 8% of Georgia principals believed there was high demand for CS (U.S. average 7%).
- **Principals perceive low school board and staff support for CS** in Georgia at 38% (U.S. average 37%).
- **Not enough budget for a CS teacher** (45%), **lack of teachers trained in CS** (40%), and **focus on test preparation for other subject areas** (40%) were reported by Texas principals as the greatest barriers to offering CS for their schools.

Recommendations

- **Differentiate between computer literacy and computer science** to ensure students not only learn to use technology, but learn to create technologies.
- **Expand CS offerings** by connecting with communities, legislators, and organizations advocating for CS.
- **Promote diverse participation** by integrating equity practices into CS pedagogy, encouraging participation through various pathways, and diversifying portrayals of CS to build confidence and identities.
- **Prioritize funding** to meet the demand for CS.
- **Increase qualified CS teachers** through incentives and support of quality teacher preparation and certification.
- **Integrate CS** via flexible curricula, empowering teachers to use CS in their subjects.
- **Allow CS classes to count towards graduation and college admissions** to encourage participation.

*See **g.co/cseduresearch** for recommended resources.*

Google

GALLUP

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Data Tables

The descriptive data tables below show responses by 305 Georgia K-12 principals compared to the full sample of 9,693 U.S. K-12 principals, surveyed Nov.-Dec. 2014; sample size may vary by question. Percentage point differences from the U.S. for each category were calculated from the percentages bolded below. Full methodology is at **g.co/cseduresearch**.

Knowledge & Perceptions	GA	US
Knowledge of CS (% no to both)	**37**	**33**
Which of the following activities do you consider part of CS? (% no)		
...Creating documents or presentations on the computer	39	35
...Searching the Internet	51	44
Image of CS careers (average % positive)	**90**	**87**
People who do CS make things that help improve lives. (% agree)	87	82
There are a lot of good jobs available in the U.S. for people who know CS. (% agree)	91	90
CS can be used in a lot of different types of jobs. (% agree)	92	89
Value of CS in schools (average % positive)	**75**	**72**
It is a good idea to try to incorporate CS education into other subjects at school. (% agree)	74	70
Most students should be required to take a computer science course. (% agree)	60	59
Do you think offering opportunities to learn CS is more important, just as important, or less important to a student's future success than (% just as/more important)		
...required courses like math, science, history and English?	74	68
...other elective courses like art, music, and foreign languages?	93	91

Opportunities & Participation	GA	US
CS offered > 5 years: How long has your school offered opportunities to learn computer science? (% greater than 5 years)	**44**	**49**
Math or science credit for CS (% positive to either)	**10**	**13**
Which of the following describe how credit is given for computer science courses offered at your school? Select all that apply. (%)		
...A math requirement	7	10
...A science requirement	8	8
No prerequisites: Do CS classes offered in your school have prerequisites? (% no)	**73**	**73**
CS offerings (average % positive)	**53**	**53**
About how many different types of CS courses are available in your school this year? (% 1+)	49	54
For each of the CS classes available this year, how many are (% 1+)		
...Introductory level	95	95
...AP courses	20	21
...Other	41	44
As far as you know, is CS taught as part of other classes at your school? (% yes)	41	43
How many school clubs or after-school activities that expose students to CS are at your school? (% 1+)	72	62
CS includes programming: Do the computer science opportunities offered in your school include any of the following elements? ...Computer programming and coding (%)	**51**	**53**

Opportunities & Participation	GA	US
CS growth & participation (average % positive)	**47**	**46**
[Of those offering CS] In the last 3 years, has CS participation increased, stayed about the same, or decreased? (% increased)	50	51
In the next 3 years, will the number of opportunities to learn CS in your school increase, stay the same, or decrease? (% increase)	50	49
Students who learn CS: How often are students who learn CS at your school (% usually/sometimes)		
...Girls	26 /56	27 /54
...White/Caucasian	48 /43	60 /32
...Black/African-American	26 /57	21 /43
...Hispanic/Latino	18 /48	21 /44
...Asian	33 /43	26 /41

School Infrastructure	GA	US
Demand for CS (average % positive)	**30**	**27**
Demand for CS education among parents in your school is (%)		
...High	8	7
...Increasing	40	36
Demand for CS education among students in your school is (%)		
...High	15	14
...Increasing	57	49
Support for CS (average % positive)	**38**	**37**
CS education is currently a top priority for my school. (% agree)	23	24
My school board believes CS education is important to offer in our schools. (% agree)	43	43
The majority of teachers and counselors in my school think it is important to offer CS. (% agree)	48	45
Teacher availability (average % positive)	**50**	**48**
I could easily identify a staff member with the skills and knowledge to teach a CS course. (% agree)	58	56
Would you have to hire a new teacher to teach CS or is there teacher at your school could teach CS? (% there is a teacher)	42	40
Barriers		
As far as you know, why doesn't your school offer any ways to learn computer science? Select all that apply. (%)		
...There is not enough money to train or hire a teacher.	45	44
...There are no teachers available at my school with the necessary skills to teach computer science.	40	42
...We have to devote most of our time to other courses that are related to testing requirements and computer science is not.	40	47
What was the largest barrier your school had to overcome to offer CS? (%)		
...There was not enough money to train or hire a teacher.	20	13