Moving Forward:
Closing the Computer Science Learning Gap

RURAL AND SMALL-TOWN SCHOOL DISTRICTS

Computer science (CS) education will enable students to gain widely applicable analytical and problem-solving skills and foster innovative thinking. This summary highlights the state of computer science education in rural and small-town areas, based on surveys conducted from February through March 2020. Results suggest there are persistent challenges to accessing CS education, as reported in previous studies.[1]

Overview

Educators understand the value and opportunities that CS education provides for students. More than seven in 10 of all principals (76%) surveyed think CS is just as or more important than other required courses.

At least three in four principals agree that CS education would significantly improve students' future career options. This is true for principals in rural (77%), small-town (85%), suburban (78%) and city schools (79%).

Majorities of principals and superintendents in rural areas and small towns expect that opportunities to learn CS in their schools will increase in the future.

Students from rural areas are least likely to say they have personally learned programming or coding.

Have you, personally, ever learned any of the following CS concepts?

*Computer programming or coding to create things such as websites, apps or video games*

(% yes)

Rural	Town	Suburb	City
45	56	61	62
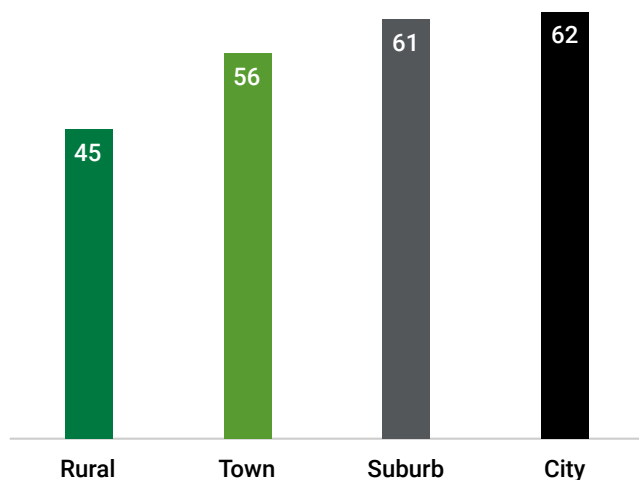
Students from rural areas are least likely to say there is an adult in their life who uses programming or coding.

Is there an adult in your life who uses programming or coding to create advanced things like software, apps, games, websites and electronics?

(% yes)

Rural	Town	Suburb	City
27	39	36	39
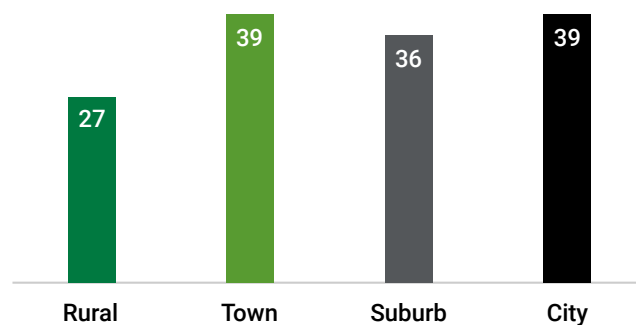
More than four in 10 teachers expect opportunities to learn CS in their school to increase in the next three years.*

In the next three years, do you expect the number of opportunities to learn computer science in your school will increase, stay the same or decrease?

	Rural	Town	Suburb	City
+ Increase	44%	46%	47%	45%
= Stay the same	50%	50%	48%	43%
- Decrease	1%	1%	0%	2%
/ Don't know	5%	3%	6%	10%

*Public school teachers only (n = 819)

Nearly six in 10 principals expect opportunities to learn CS in their school to increase in the next three years.

In the next three years, do you expect the number of opportunities to learn computer science in your school will increase, stay the same or decrease?

	Rural	Town	Suburb	City
+ Increase	58%	60%	56%	56%
= Stay the same	37%	34%	36%	34%
- Decrease	1%	1%	1%	1%
/ Don't know	4%	6%	8%	9%

Overall, seven in 10 superintendents expect opportunities to learn CS in their schools to increase in the next three years.

In the next three years, do you expect the number of opportunities to learn computer science in your school will increase, stay the same or decrease?

	Rural	Town	Suburb	City
+ Increase	66%	74%	78%	88%
= Stay the same	30%	22%	20%	10%
- Decrease	0%	1%	0%	0%
/ Don't know	4%	3%	2%	1%

Findings

While those in rural school districts value CS and many educators expect that CS education opportunities will increase in the future, there are gaps in prioritization and access to opportunities.

Students who attend school in rural areas are less likely than those in city schools to …

- Agree they would want to tell their friends if they were interested in computer science (58% vs. 70%).
- Say there are opportunities in the community for students like them to learn CS outside of school (27% vs. 48%). Overall, 45% of students say they do not know if there are such opportunities.
- Have ever learned any CS (61% vs. 68%).

Parents of students in rural-area schools are less likely than those in city schools to …

- Say their child has learned any computer science (46% vs. 56%). Additionally, parents from lower-income households (less than $48,000/year) are less likely than parents in higher-income households (more than $120,000/year) to say that their child has learned any CS (44% vs. 55%).
- Have looked for ways to help their child learn CS (31% vs. 40%).
- Say there are opportunities in their community for students like their child to learn CS outside of school (30% vs. 48%).
- Agree that having CS education would significantly improve the future career options for their child (65% vs. 75%).
- Say they have encouraged their child to pursue a career in CS (25% vs. 37%).
- Say they have encouraged their child to learn about CS (61% vs. 73%).

Teachers in rural-area schools are less likely than those in cities to …

- Agree that it is extremely important for all students to learn CS (37% vs. 51%).
- Agree that computer science is used in a lot of different types of jobs (66% vs. 77%).
- Agree that students should be required to take a CS course if it is available (45% vs. 55%).
- Agree that credits earned for high school CS courses should count toward fulfilling core course requirements for graduation (60% vs. 69%), though majorities still agree.

Findings (continued)

> **Principals** of schools in rural areas are less likely than those in cities to ...

- Agree that parents and guardians at their schools are eager to have their children pursue a career in CS (19% vs. 29%). Relatedly, principals of the largest schools (37%) are more likely to agree than principals of smaller schools (22%).
- Agree that CS education should be incorporated into other subjects at school (61% vs. 67%).
- Say there are opportunities in their community for students to learn CS outside of school (38% vs. 52%). Principals in suburban-area schools (60%) are most likely to say these opportunities exist.
- Say there are groups or clubs that meet in their schools where students learn CS (52% vs. 64%).

> **Superintendents** of rural school districts are less likely than those in cities to ...

- Agree their school board is committed to offering CS (46% vs. 67%).
- Agree that in the last three years, teaching CS has become a higher priority for their school district (43% vs. 61%).
- Agree that having CS education would significantly improve their students' future career options (78% vs. 89%).
- Agree that parents and guardians in their district are eager to have their children pursue a career in CS (21% vs. 37%). Relatedly, agreement increases along with school district size, and agreement is greater among superintendents who think their CS learning programs are excellent when compared with those who do not rate their programs this highly (38% vs. 26%).
- Rate the quality of CS learning in their district as "excellent" or "very good" (30% vs. 53%).

About the Survey

Google commissioned Gallup to conduct a multiyear study of perspectives and access to computer science education in U.S. K-12 schools. Gallup surveyed students, parents and guardians, and teachers in public and private schools via the Gallup Panel and principals and superintendents from U.S. public schools and districts using a purchased sample. Sample sizes vary by question.

See **g.co/cseduresearch** for the methodology in the *Current Perspectives and Continuing Challenges in Computer Science Education in U.S. K-12 Schools* report.

	Rural	Town	Suburb	City
Students (n = 1,402)	17%	17%	41%	24%
Parents (n = 2,092)	18%	18%	38%	25%
Teachers (n = 979)	22%	14%	36%	28%
Principals (n = 1,521)	27%	14%	32%	27%
Superintendents (n = 1,479)	50%	20%	23%	7%

RECOMMENDATIONS

1. **Provide virtual access** to CS education opportunities for students outside of school. Boost educators' and parents' and guardians' access to information about the wealth of career options available in computing.

2. **Collaborate with parents and guardians** to initiate CS learning activities.

3. **Leverage remote organizations** to mentor and introduce students to CS learning activities and boost CS career literacy.

Endnotes

1 Google LLC & Gallup, Inc. (2017, August). Computer Science Learning: Closing the Gap: Rural and Small-Town School Districts. Results From the 2015-2016 Google-Gallup Study of Computer Science in U.S. K-12 Schools (Issue Brief No. 4). Accessed from **http://services.google.com/fh/files/misc/computer-science-learning-closing-the-gap-rural-small-town-brief.pdf**