K-12 Computer Science Education

State Reports

About the Reports

The following reports summarize the status of computer science education from principals' input for 11 U.S. states with sufficient principal responses and offer recommendations for each state to broaden access to and participation in computer science learning. The reports are based on the 2014-15 Google-Gallup 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.

Learn more at **g.co/cseduresearch.**

Contents

Reports by state
- California
- Florida
- Georgia
- Illinois
- Michigan
- North Caroilna
- New York
- Ohio
- Pennsylvania
- Texas
- Wisconsin

Methodology

K-12 Computer Science Education

California

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.

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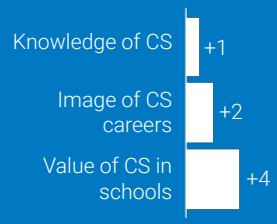
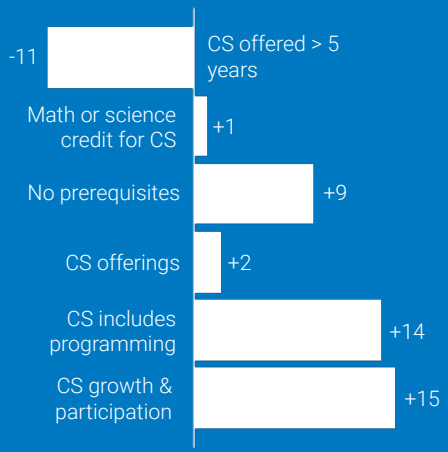
Compared to the U.S. average, California principals more likely value CS learning. However, CA schools are less likely to offer CS and AP CS classes but more likely to have afterschool CS programs. CS learning opportunities also more likely include programming. California principals report growing participation and demand among students and parents.

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

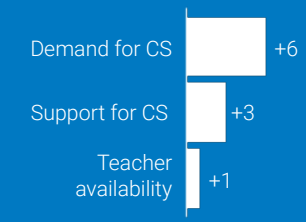
Knowledge & Perceptions



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 California.

Findings

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

- **Most confuse CS as basic computer literacy**. In California, only 34% of principals surveyed correctly identified computer literacy activities as *not* computer science (U.S. average 33%).
- **CS offerings are limited**, with 33% of California principals reporting offering CS classes with programming and coding (U.S. average 26%).
- **CS offerings often appeal to and serve a subset of students**. California principals report CS students are most commonly White and, when compared to the U.S. average, are more often Hispanic or Asian but less often Black.

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

- **Parents' demand for CS is not heard**; 91% of U.S. parents want their child to learn CS, whereas only 9% of California principals believed there was high demand for CS (U.S. average 7%).
- **Principals perceive low school board and staff support for CS** in California at 40% (U.S. average 37%).
- **Lack of teachers trained in CS** (55%), **not enough budget for a CS teacher** (53%), and **lack of necessary computer software** (46%) were reported by California 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.
- **Increase qualified CS teachers** through incentives and support of quality teacher preparation and certification.
- **Prioritize funding** to meet the demand for CS.
- **Broaden student access to various computer technologies** through a variety of paths in and out of school.

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

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K-12 Computer Science Education

California

Data Tables

The descriptive data tables below show responses by 709 California 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	CA	US
Knowledge of CS (% no to both)	**34**	**33**
Which of the following activities do you consider part of CS? (% no)		
...Creating documents or presentations on the computer	37	35
...Searching the Internet	42	44
Image of CS careers (average % positive)	**89**	**87**
People who do CS make things that help improve lives. (% agree)	83	82
There are a lot of good jobs available in the U.S. for people who know CS. (% agree)	92	90
CS can be used in a lot of different types of jobs. (% agree)	91	89
Value of CS in schools (average % positive)	**76**	**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)	65	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?	72	68
...other elective courses like art, music, and foreign languages?	92	91

Opportunities & Participation	CA	US
CS offered > 5 years: How long has your school offered opportunities to learn computer science? (% greater than 5 years)	**39**	**49**
Math or science credit for CS (% positive to either)	**14**	**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	10	10
...A science requirement	8	8
No prerequisites: Do CS classes offered in your school have prerequisites? (% no)	**82**	**73**
CS offerings (average % positive)	**55**	**53**
About how many different types of CS courses are available in your school this year? (% 1+)	53	54
For each of the CS classes available this year, how many are (% 1+)		
...Introductory level	95	95
...AP courses	19	21
...Other	43	44
As far as you know, is CS taught as part of other classes at your school? (% yes)	48	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 (%)	**67**	**53**

Opportunities & Participation	CA	US
CS growth & participation (average % positive)	**61**	**46**
[Of those offering CS] In the last 3 years, has CS participation increased, stayed about the same, or decreased? (% increased)	68	51
In the next 3 years, will the number of opportunities to learn CS in your school increase, stay the same, or decrease? (% increase)	63	49
Students who learn CS: How often are students who learn CS at your school (% usually/sometimes)		
...Girls	26 /57	27 /54
...White/Caucasian	42 /48	60 /32
...Black/African-American	15 /47	21 /43
...Hispanic/Latino	25 /50	21 /44
...Asian	36 /48	26 /41

School Infrastructure	CA	US
Demand for CS (average % positive)	**33**	**27**
Demand for CS education among parents in your school is (%)		
...High	9	7
...Increasing	48	36
Demand for CS education among students in your school is (%)		
...High	17	14
...Increasing	58	49
Support for CS (average % positive)	**40**	**37**
CS education is currently a top priority for my school. (% agree)	28	24
My school board believes CS education is important to offer in our schools. (% agree)	45	43
The majority of teachers and counselors in my school think it is important to offer CS. (% agree)	48	45
Teacher availability (average % positive)	**49**	**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)	41	40
Barriers		
As far as you know, why doesn't your school offer any ways to learn computer science? Select all that apply. (%)		
...There are no teachers available at my school with the necessary skills to teach computer science.	55	42
...There is not enough money to train or hire a teacher.	53	44
...We do not have the necessary computer software.	46	32
What was the largest barrier your school had to overcome to offer CS? (%)		
...There were no teachers available at my school with the necessary skills to teach computer science.	21	15

K-12 Computer Science Education

Florida

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.

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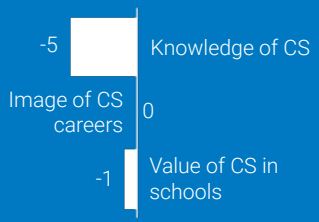
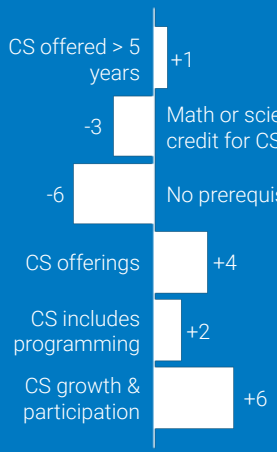
Compared to the U.S. average, a smaller portion of Florida principals correctly distinguish CS from computer literacy. They also less likely offer CS classes, and when offered, CS classes often have prerequisites and less likely count for math or science. However, a greater percentage report growth, demand, and support of CS in their schools.

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

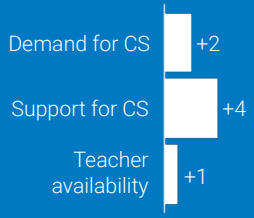
Knowledge & Perceptions



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 Florida.

Findings

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

- **Most confuse CS as basic computer literacy**. In Florida, only 28% of principals surveyed correctly identified computer literacy activities as *not* computer science (U.S. average 33%).
- **CS offerings are limited**, with 26% of Florida principals reporting offering CS classes with programming and coding (U.S. average 26%).
- **CS offerings often appeal to and serve a subset of students**. Florida principals most commonly report CS students are usually White, though they report greater frequencies of Black, Hispanic, Asian, and female students compared to the U.S. average.

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

- **Parents' demand for CS is not heard**; 91% of U.S. parents want their child to learn CS, whereas only 8% of Florida principals believed there was high demand for CS (U.S. average 7%).
- **Principals perceive low school board and staff support for CS** in Florida at 42% (U.S. average 37%).
- **Focus on test preparation for other subject areas** (51%), **too little budget for computer equipment** (41%) **and software** (40%), and **not enough budget for a CS teacher** (39%) were reported by Florida 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.
- **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.
- **Prioritize funding** to meet the demand for CS.

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

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K-12 Computer Science Education

Florida

Data Tables

The descriptive data tables below show responses by 349 Florida 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	FL	US
Knowledge of CS (% no to both)	**28**	**33**
Which of the following activities do you consider part of CS? (% no)		
...Creating documents or presentations on the computer	30	35
...Searching the Internet	39	44
Image of CS careers (average % positive)	**86**	**87**
People who do CS make things that help improve lives. (% agree)	81	82
There are a lot of good jobs available in the U.S. for people who know CS. (% agree)	89	90
CS can be used in a lot of different types of jobs. (% agree)	89	89
Value of CS in schools (average % positive)	**71**	**72**
It is a good idea to try to incorporate CS education into other subjects at school. (% agree)	70	70
Most students should be required to take a computer science course. (% agree)	54	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?	67	68
...other elective courses like art, music, and foreign languages?	93	91

Opportunities & Participation	FL	US
CS offered > 5 years: How long has your school offered opportunities to learn computer science? (% greater than 5 years)	**51**	**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	9	10
...A science requirement	8	8
No prerequisites: Do CS classes offered in your school have prerequisites? (% no)	**67**	**73**
CS offerings (average % positive)	**57**	**53**
About how many different types of CS courses are available in your school this year? (% 1+)	50	54
For each of the CS classes available this year, how many are (% 1+)		
...Introductory level	99	95
...AP courses	22	21
...Other	50	44
As far as you know, is CS taught as part of other classes at your school? (% yes)	48	43
How many school clubs or after-school activities that expose students to CS are at your school? (% 1+)	71	62
CS includes programming: Do the computer science opportunities offered in your school include any of the following elements? ...Computer programming and coding (%)	**55**	**53**

Opportunities & Participation	FL	US
CS growth & participation (average % positive)	**52**	**46**
[Of those offering CS] In the last 3 years, has CS participation increased, stayed about the same, or decreased? (% increased)	59	51
In the next 3 years, will the number of opportunities to learn CS in your school increase, stay the same, or decrease? (% increase)	56	49
Students who learn CS: How often are students who learn CS at your school (% usually/sometimes)		
...Girls	37 /50	27 /54
...White/Caucasian	54 /37	60 /32
...Black/African-American	38 /44	21 /43
...Hispanic/Latino	31 /52	21 /44
...Asian	35 /45	26 /41

School Infrastructure	FL	US
Demand for CS (average % positive)	**29**	**27**
Demand for CS education among parents in your school is (%)		
...High	8	7
...Increasing	42	36
Demand for CS education among students in your school is (%)		
...High	16	14
...Increasing	50	49
Support for CS (average % positive)	**42**	**37**
CS education is currently a top priority for my school. (% agree)	28	24
My school board believes CS education is important to offer in our schools. (% agree)	50	43
The majority of teachers and counselors in my school think it is important to offer CS. (% agree)	46	45
Teacher availability (average % positive)	**49**	**48**
I could easily identify a staff member with the skills and knowledge to teach a CS course. (% agree)	56	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. (%)		
...We have to devote most of our time to other courses that are related to testing requirements and computer science is not.	51	47
...We do not have sufficient budget to purchase the necessary computer equipment.	41	34
...We do not have sufficient budget to purchase the necessary computer software.	40	33
What was the largest barrier your school had to overcome to offer CS? (%)		
...Not enough money to purchase necessary computer equipment.	21	13

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.

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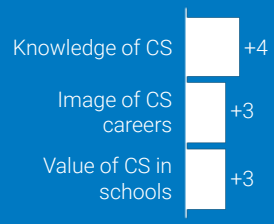
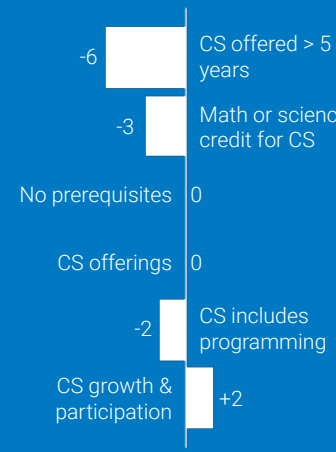
Georgia principals more often correctly distinguished CS from computer literacy and have a positive image and value of CS, compared to the average U.S. principal. They also more likely have afterschool CS, but less likely have CS classes. Overall, a greater percentage report demand for CS in their schools.

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

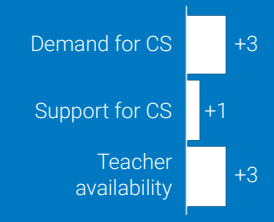
Knowledge & Perceptions



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

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K-12 Computer Science Education

Georgia

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?	**51**	**53**
...Computer programming and coding (%)		

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

K-12 Computer Science Education

Illinois

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.

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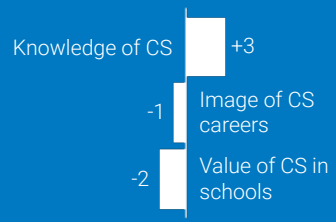
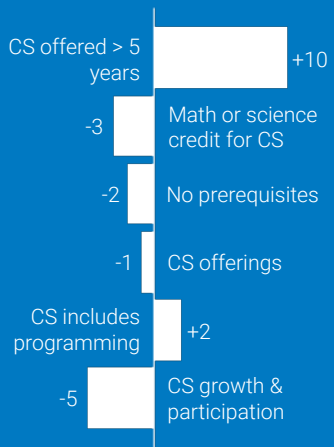
Illinois principals more often correctly distinguished CS from computer literacy, yet less valued CS, compared to the U.S. average. They less likely offer CS classes, but of those who do, more have had CS for over five years. A smaller portion of Illinois principals report having CS afterschool and fewer reported growth in CS.

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

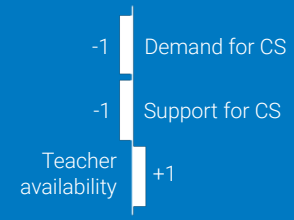
Knowledge & Perceptions



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 Illinois.

Findings

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

- **Most confuse CS as basic computer literacy**. In Illinois, only 36% of principals surveyed correctly identified computer literacy activities as *not* computer science (U.S. average 33%).
- **CS offerings are limited**, with 24% of Illinois principals reporting offering CS classes with programming and coding (U.S. average 26%).
- **CS offerings often appeal to and serve a subset of students**. Illinois principals report CS students are most often White.

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

- **Parents' demand for CS is not heard**; 91% of U.S. parents want their child to learn CS, whereas only 11% of Illinois principals believed there was high demand for CS (U.S. average 7%).
- **Principals perceive low school board and staff support for CS** in Illinois at 36% (U.S. average 37%).
- **Focus on test preparation for other subject areas** (43%), **lack of teachers trained in CS** (40%), and **not enough budget for a CS teacher** (38%) were reported by Illinois 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.
- **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.
- **Increase qualified CS teachers** through incentives and support of quality teacher preparation and certification.
- **Prioritize funding** to meet the demand for CS.

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

Google

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K-12 Computer Science Education

Illinois

Data Tables

The descriptive data tables below show responses by 338 Illinois 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	IL	US
Knowledge of CS (% no to both)	**36**	**33**
Which of the following activities do you consider part of CS? (% no)		
...Creating documents or presentations on the computer	37	35
...Searching the Internet	46	44
Image of CS careers (average % positive)	**86**	**87**
People who do CS make things that help improve lives. (% agree)	80	82
There are a lot of good jobs available in the U.S. for people who know CS. (% agree)	90	90
CS can be used in a lot of different types of jobs. (% agree)	88	89
Value of CS in schools (average % positive)	**70**	**72**
It is a good idea to try to incorporate CS education into other subjects at school. (% agree)	69	70
Most students should be required to take a computer science course. (% agree)	56	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?	65	68
...other elective courses like art, music, and foreign languages?	90	91

Opportunities & Participation	IL	US
CS offered > 5 years: How long has your school offered opportunities to learn computer science? (% greater than 5 years)	**59**	**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	10	10
...A science requirement	3	8
No prerequisites: Do CS classes offered in your school have prerequisites? (% no)	**71**	**73**
CS offerings (average % positive)	**52**	**53**
About how many different types of CS courses are available in your school this year? (% 1+)	48	54
For each of the CS classes available this year, how many are (% 1+)		
...Introductory level	96	95
...AP courses	22	21
...Other	43	44
As far as you know, is CS taught as part of other classes at your school? (% yes)	45	43
How many school clubs or after-school activities that expose students to CS are at your school? (% 1+)	57	62
CS includes programming: Do the computer science opportunities offered in your school include any of the following elements? ...Computer programming and coding (%)	**55**	**53**

Opportunities & Participation	IL	US
CS growth & participation (average % positive)	**41**	**46**
[Of those offering CS] In the last 3 years, has CS participation increased, stayed about the same, or decreased? (% increased)	44	51
In the next 3 years, will the number of opportunities to learn CS in your school increase, stay the same, or decrease? (% increase)	43	49
Students who learn CS: How often are students who learn CS at your school (% usually/sometimes)		
...Girls	24 /58	27 /54
...White/Caucasian	67 /26	60 /32
...Black/African-American	18 /44	21 /43
...Hispanic/Latino	18 /46	21 /44
...Asian	21 /42	26 /41

School Infrastructure	IL	US
Demand for CS (average % positive)	**25**	**27**
Demand for CS education among parents in your school is (%)		
...High	11	7
...Increasing	33	36
Demand for CS education among students in your school is (%)		
...High	12	14
...Increasing	46	49
Support for CS (average % positive)	**36**	**37**
CS education is currently a top priority for my school. (% agree)	24	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)	41	45
Teacher availability (average % positive)	**48**	**48**
I could easily identify a staff member with the skills and knowledge to teach a CS course. (% agree)	54	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)	43	40
Barriers		
As far as you know, why doesn't your school offer any ways to learn computer science? Select all that apply. (%)		
...We have to devote most of our time to other courses that are related to testing requirements and computer science is not.	43	47
...There are no teachers available at my school with the necessary skills to teach computer science.	40	42
...There is not enough money to train or hire a teacher.	38	44
What was the largest barrier your school had to overcome to offer CS? (%)		
...There were too many other courses that students have to take in order to prepare for college.	19	16

K-12 Computer Science Education

Michigan

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.

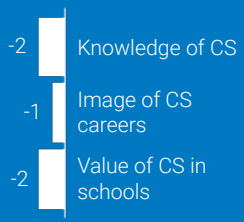
These data are from a multi-year Google-Gallup study of U.S. students, parents, teachers, principals, and superintendents.

g.co/cseduresearch

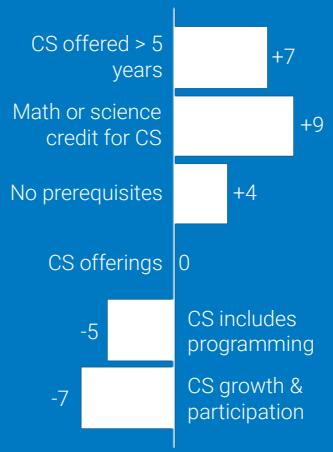
Michigan principals report lower value, growth, demand, and support in CS, compared to the U.S. average. However, those who offer CS more often report having it for over five years, more likely count CS as math or science credit, and less likely have prerequisites. But, these CS opportunities are less likely to include programming.

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

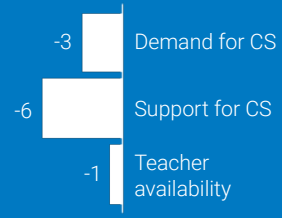
Knowledge & Perceptions



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 Michigan.

Findings

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

- **Most confuse CS as basic computer literacy**. In Michigan, only 31% of principals surveyed correctly identified computer literacy activities as *not* computer science (U.S. average 33%).
- **CS offerings are limited**, with 24% of Michigan principals reporting offering CS classes with programming and coding (U.S. average 26%).
- **CS offerings often appeal to and serve a subset of students**. Michigan principals report CS students are mostly White and, when compared to the U.S. average, less often girls and slightly less often Black or Asian.

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

- **Parents' demand for CS is not heard**; 91% of U.S. parents want their child to learn CS, whereas only 6% of Michigan principals believed there was high demand for CS (U.S. average 7%).
- **Principals perceive low school board and staff support for CS** in Michigan at 32% (U.S. average 37%).
- **Focus on test preparation for other subject areas** (47%), **not enough budget for a CS teacher** (44%), and **lack of teachers trained in CS** (40%) were reported by Michigan 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.
- **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.
- **Prioritize funding** to meet the demand for CS.
- **Increase qualified CS teachers** through incentives and support of quality teacher preparation and certification.

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

Google

GALLUP

K-12 Computer Science Education

Michigan

Data Tables

The descriptive data tables below show responses by 400 Michigan 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	MI	US
Knowledge of CS (% no to both)	**31**	**33**
Which of the following activities do you consider part of CS? (% no)		
...Creating documents or presentations on the computer	33	35
...Searching the Internet	45	44
Image of CS careers (average % positive)	**86**	**87**
People who do CS make things that help improve lives. (% agree)	83	82
There are a lot of good jobs available in the U.S. for people who know CS. (% agree)	90	90
CS can be used in a lot of different types of jobs. (% agree)	85	89
Value of CS in schools (average % positive)	**70**	**72**
It is a good idea to try to incorporate CS education into other subjects at school. (% agree)	70	70
Most students should be required to take a computer science course. (% agree)	56	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?	64	68
...other elective courses like art, music, and foreign languages?	89	91

Opportunities & Participation	MI	US
CS offered > 5 years: How long has your school offered opportunities to learn computer science? (% greater than 5 years)	**56**	**49**
Math or science credit for CS (% positive to either)	**22**	**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	17	10
...A science requirement	13	8
No prerequisites: Do CS classes offered in your school have prerequisites? (% no)	**77**	**73**
CS offerings (average % positive)	**53**	**53**
About how many different types of CS courses are available in your school this year? (% 1+)	52	54
For each of the CS classes available this year, how many are (% 1+)		
...Introductory level	94	95
...AP courses	19	21
...Other	46	44
As far as you know, is CS taught as part of other classes at your school? (% yes)	44	43
How many school clubs or after-school activities that expose students to CS are at your school? (% 1+)	60	62
CS includes programming: Do the computer science opportunities offered in your school include any of the following elements? ...Computer programming and coding (%)	**48**	**53**

Opportunities & Participation	MI	US
CS growth & participation (average % positive)	**39**	**46**
[Of those offering CS] In the last 3 years, has CS participation increased, stayed about the same, or decreased? (% increased)	42	51
In the next 3 years, will the number of opportunities to learn CS in your school increase, stay the same, or decrease? (% increase)	40	49
Students who learn CS: How often are students who learn CS at your school (% usually/sometimes)		
...Girls	22 /50	27 /54
...White/Caucasian	62 /25	60 /32
...Black/African-American	21 /39	21 /43
...Hispanic/Latino	19 /36	21 /44
...Asian	24 /39	26 /41

School Infrastructure	MI	US
Demand for CS (average % positive)	**23**	**27**
Demand for CS education among parents in your school is (%)		
...High	6	7
...Increasing	30	36
Demand for CS education among students in your school is (%)		
...High	12	14
...Increasing	45	49
Support for CS (average % positive)	**32**	**37**
CS education is currently a top priority for my school. (% agree)	17	24
My school board believes CS education is important to offer in our schools. (% agree)	38	43
The majority of teachers and counselors in my school think it is important to offer CS. (% agree)	40	45
Teacher availability (average % positive)	**47**	**48**
I could easily identify a staff member with the skills and knowledge to teach a CS course. (% agree)	56	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)	37	40
Barriers		
As far as you know, why doesn't your school offer any ways to learn computer science? Select all that apply. (%)		
...We have to devote most of our time to other courses that are related to testing requirements and computer science is not.	47	47
...There is not enough money to train or hire a teacher.	44	44
...There are no teachers available at my school with the necessary skills to teach computer science.	40	42
What was the largest barrier your school had to overcome to offer CS? (%)		
...There were too many other courses that students have to take in order to prepare for college.	17	16

K-12 Computer Science Education

North Carolina

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.

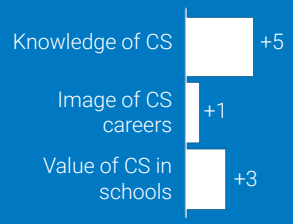
These data are from a multi-year Google-Gallup study of U.S. students, parents, teachers, principals, and superintendents.

g.co/cseduresearch

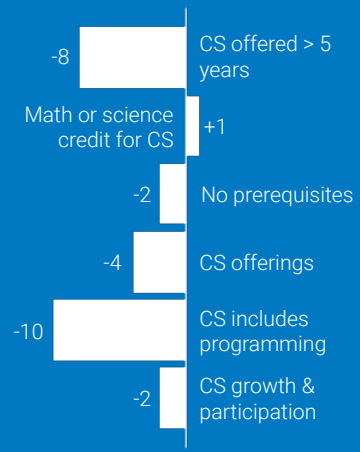
A greater portion of North Carolina principals correctly distinguish CS from computer literacy and value CS than the U.S. average. Yet, they much less likely offer AP CS, other CS classes, and afterschool programs with CS, with fewer including programming. North Carolina principals also report less CS support from school stakeholders.

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

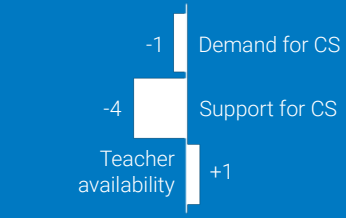
Knowledge & Perceptions



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 North Carolina.

Findings

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

- **Most confuse CS as basic computer literacy**. In North Carolina, only 39% of principals surveyed correctly identified computer literacy activities as *not* computer science (U.S. average 33%).
- **CS offerings are limited**, with 21% of North Carolina principals reporting offering CS classes with programming and coding (U.S. average 26%).
- **CS offerings often appeal to and serve a subset of students**. North Carolina principals report CS students are most often White, and more often girls and slightly more often Black compared to the U.S. average.

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

- **Parents' demand for CS is not heard**; 91% of U.S. parents want their child to learn CS, whereas only 6% of North Carolina principals believed there was high demand for CS (U.S. average 7%).
- **Principals perceive low school board and staff support for CS** in North Carolina at 34% (U.S. average 37%).
- **Not enough budget for a CS teacher** (48%), **focus on test preparation for other subject areas** (45%), and **lack of teachers trained in CS** (40%) were reported by North Carolina 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.
- **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.
- **Increase qualified CS teachers** through incentives and support of quality teacher preparation and certification.

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

Google

GALLUP

K-12 Computer Science Education

North Carolina

Data Tables

The descriptive data tables below show responses by 411 North Carolina 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	NC	US
Knowledge of CS (% no to both)	**39**	**33**
Which of the following activities do you consider part of CS? (% no)		
...Creating documents or presentations on the computer	40	35
...Searching the Internet	50	44
Image of CS careers (average % positive)	**88**	**87**
People who do CS make things that help improve lives. (% agree)	83	82
There are a lot of good jobs available in the U.S. for people who know CS. (% agree)	89	90
CS can be used in a lot of different types of jobs. (% agree)	91	89
Value of CS in schools (average % positive)	**74**	**72**
It is a good idea to try to incorporate CS education into other subjects at school. (% agree)	69	70
Most students should be required to take a computer science course. (% agree)	59	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?	94	91

Opportunities & Participation	NC	US
CS offered > 5 years: How long has your school offered opportunities to learn computer science? (% greater than 5 years)	**41**	**49**
Math or science credit for CS (% positive to either)	**14**	**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	12	10
...A science requirement	5	8
No prerequisites: Do CS classes offered in your school have prerequisites? (% no)	**71**	**73**
CS offerings (average % positive)	**49**	**53**
About how many different types of CS courses are available in your school this year? (% 1+)	55	54
For each of the CS classes available this year, how many are (% 1+)		
...Introductory level	96	95
...AP courses	13	21
...Other	36	44
As far as you know, is CS taught as part of other classes at your school? (% yes)	34	43
How many school clubs or after-school activities that expose students to CS are at your school? (% 1+)	59	62
CS includes programming: Do the computer science opportunities offered in your school include any of the following elements? ...Computer programming and coding (%)	**43**	**53**

Opportunities & Participation	NC	US
CS growth & participation (average % positive)	**44**	**46**
[Of those offering CS] In the last 3 years, has CS participation increased, stayed about the same, or decreased? (% increased)	49	51
In the next 3 years, will the number of opportunities to learn CS in your school increase, stay the same, or decrease? (% increase)	46	49
Students who learn CS: How often are students who learn CS at your school (% usually/sometimes)		
...Girls	24 /66	27 /54
...White/Caucasian	58 /38	60 /32
...Black/African-American	19 /58	21 /43
...Hispanic/Latino	17 /51	21 /44
...Asian	23 /48	26 /41

School Infrastructure	NC	US
Demand for CS (average % positive)	**26**	**27**
Demand for CS education among parents in your school is (%)		
...High	6	7
...Increasing	35	36
Demand for CS education among students in your school is (%)		
...High	12	14
...Increasing	50	49
Support for CS (average % positive)	**34**	**37**
CS education is currently a top priority for my school. (% agree)	19	24
My school board believes CS education is important to offer in our schools. (% agree)	40	43
The majority of teachers and counselors in my school think it is important to offer CS. (% agree)	41	45
Teacher availability (average % positive)	**48**	**48**
I could easily identify a staff member with the skills and knowledge to teach a CS course. (% agree)	56	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)	40	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.	48	44
...We have to devote most of our time to other courses that are related to testing requirements and computer science is not.	45	47
...There are no teachers available at my school with the necessary skills to teach computer science.	40	42
What was the largest barrier your school had to overcome to offer CS? (%)		
...There was not enough money to train or hire a teacher.	18	13

K-12 Computer Science Education

New York

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.

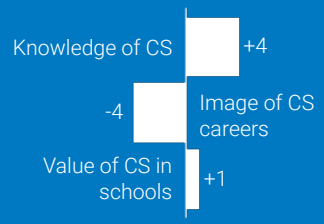
These data are from a multi-year Google-Gallup study of U.S. students, parents, teachers, principals, and superintendents.

g.co/cseduresearch

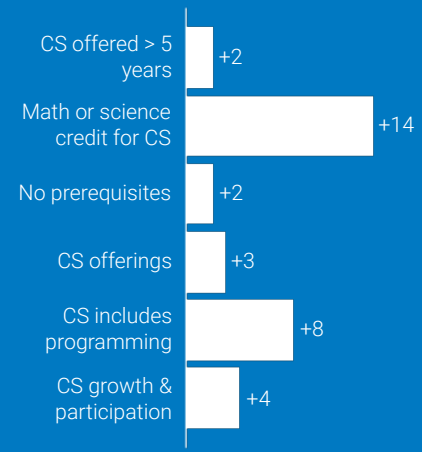
Besides their less positive image of CS careers, New York principals fare better than the U.S. average. A greater portion properly distinguish CS from computer literacy, report growth and demand for CS, offer AP CS and CS in other classes and afterschool, with more including programming, and provide math or science credit for CS.

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

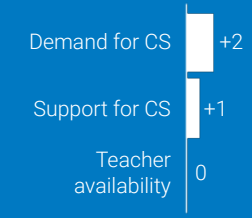
Knowledge & Perceptions



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 New York.

Findings

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

- **Most confuse CS as basic computer literacy**. In New York, only 37% of principals surveyed correctly identified computer literacy activities as *not* computer science (U.S. average 33%).
- **CS offerings are limited**, with 30% of New York principals reporting offering CS classes with programming and coding (U.S. average 26%).
- **CS offerings often appeal to and serve a subset of students**. New York principals report CS students are mostly White, and when compared to the U.S. average are more often girls or Black and slightly more often Hispanic or Asian.

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

- **Parents' demand for CS is not heard**; 91% of U.S. parents want their child to learn CS, whereas only 10% of New York principals believed there was high demand for CS (U.S. average 7%).
- **Principals perceive low school board and staff support for CS** in New York at 38% (U.S. average 37%).
- **Not enough budget for a CS teacher** (48%), **focus on test preparation for other subject areas** (45%), and **lack of teachers trained in CS** (43%) were reported by New York 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.
- **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.
- **Increase qualified CS teachers** through incentives and support of quality teacher preparation and certification.

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

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K-12 Computer Science Education

New York

Data Tables

The descriptive data tables below show responses by 410 New York 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	NY	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	47	44
Image of CS careers (average % positive)	**83**	**87**
People who do CS make things that help improve lives. (% agree)	77	82
There are a lot of good jobs available in the U.S. for people who know CS. (% agree)	86	90
CS can be used in a lot of different types of jobs. (% agree)	85	89
Value of CS in schools (average % positive)	**73**	**72**
It is a good idea to try to incorporate CS education into other subjects at school. (% agree)	70	70
Most students should be required to take a computer science course. (% agree)	63	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?	71	68
...other elective courses like art, music, and foreign languages?	89	91

Opportunities & Participation	NY	US
CS offered > 5 years: How long has your school offered opportunities to learn computer science? (% greater than 5 years)	**52**	**49**
Math or science credit for CS (% positive to either)	**27**	**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	26	10
...A science requirement	11	8
No prerequisites: Do CS classes offered in your school have prerequisites? (% no)	**75**	**73**
CS offerings (average % positive)	**56**	**53**
About how many different types of CS courses are available in your school this year? (% 1+)	54	54
For each of the CS classes available this year, how many are (% 1+)		
...Introductory level	94	95
...AP courses	27	21
...Other	47	44
As far as you know, is CS taught as part of other classes at your school? (% yes)	49	43
How many school clubs or after-school activities that expose students to CS are at your school? (% 1+)	69	62
CS includes programming: Do the computer science opportunities offered in your school include any of the following elements? ...Computer programming and coding (%)	**62**	**53**

Opportunities & Participation	NY	US
CS growth & participation (average % positive)	**50**	**46**
[Of those offering CS] In the last 3 years, has CS participation increased, stayed about the same, or decreased? (% increased)	58	51
In the next 3 years, will the number of opportunities to learn CS in your school increase, stay the same, or decrease? (% increase)	54	49
Students who learn CS: How often are students who learn CS at your school (% usually/sometimes)		
...Girls	37 /45	27 /54
...White/Caucasian	65 /22	60 /32
...Black/African-American	30 /44	21 /43
...Hispanic/Latino	31 /39	21 /44
...Asian	35 /35	26 /41

School Infrastructure	NY	US
Demand for CS (average % positive)	**28**	**27**
Demand for CS education among parents in your school is (%)		
...High	10	7
...Increasing	40	36
Demand for CS education among students in your school is (%)		
...High	17	14
...Increasing	47	49
Support for CS (average % positive)	**38**	**37**
CS education is currently a top priority for my school. (% agree)	28	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)	43	45
Teacher availability (average % positive)	**48**	**48**
I could easily identify a staff member with the skills and knowledge to teach a CS course. (% agree)	56	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)	40	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.	48	44
...We have to devote most of our time to other courses that are related to testing requirements and computer science is not.	45	47
...There are no teachers available at my school with the necessary skills to teach computer science.	43	42
What was the largest barrier your school had to overcome to offer CS? (%)		
...There were too many other courses that students have to take in order to prepare for college.	20	16

K-12 Computer Science Education

Ohio

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.

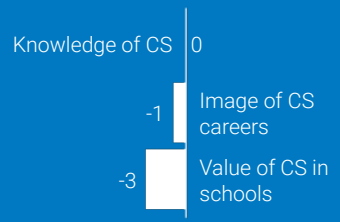
These data are from a multi-year Google-Gallup study of U.S. students, parents, teachers, principals, and superintendents.

g.co/cseduresearch

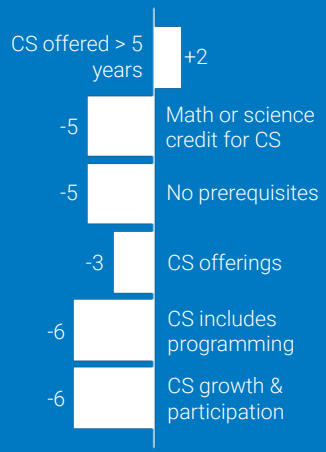
A smaller portion of Ohio principals have positive perceptions of CS and fewer offer CS, with less including programming, than the U.S. average. CS classes less often count as math or science and more often have prerequisites. Fewer Ohio principals report growth, demand, and support in CS as well as having qualified CS teachers.

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

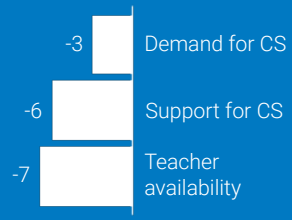
Knowledge & Perceptions



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 Ohio.

Findings

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

- **Most confuse CS as basic computer literacy**. In Ohio, only 33% of principals surveyed correctly identified computer literacy activities as *not* computer science (U.S. average 33%).
- **CS offerings are limited**, with 21% of Ohio principals reporting offering CS classes with programming and coding (U.S. average 26%).
- **CS offerings often appeal to and serve a subset of students**. Ohio principals report CS students are most commonly White and, compared to the U.S. average, less often Hispanic, Asian, Black, or female.

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

- **Parents' demand for CS is not heard**; 91% of U.S. parents want their child to learn CS, whereas only 7% of Ohio principals believed there was high demand for CS (U.S. average 7%).
- **Principals perceive low school board and staff support for CS** in Ohio at 32% (U.S. average 37%).
- **Focus on test preparation for other subject areas** (52%), **not enough budget for a CS teacher** (50%), and **lack of teachers trained in CS** (48%) were reported by Ohio 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.
- **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.
- **Prioritize funding** to meet the demand for CS.
- **Increase qualified CS teachers** through incentives and support of quality teacher preparation and certification.

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

Google

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K-12 Computer Science Education

Ohio

Data Tables

The descriptive data tables below show responses by 442 Ohio 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	OH	US
Knowledge of CS (% no to both)	**33**	**33**
Which of the following activities do you consider part of CS? (% no)		
...Creating documents or presentations on the computer	34	35
...Searching the Internet	44	44
Image of CS careers (average % positive)	**86**	**87**
People who do CS make things that help improve lives. (% agree)	81	82
There are a lot of good jobs available in the U.S. for people who know CS. (% agree)	88	90
CS can be used in a lot of different types of jobs. (% agree)	88	89
Value of CS in schools (average % positive)	**69**	**72**
It is a good idea to try to incorporate CS education into other subjects at school. (% agree)	68	70
Most students should be required to take a computer science course. (% agree)	55	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?	64	68
...other elective courses like art, music, and foreign languages?	91	91

Opportunities & Participation	OH	US
CS offered > 5 years: How long has your school offered opportunities to learn computer science? (% greater than 5 years)	**51**	**49**
Math or science credit for CS (% positive to either)	**8**	**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	3	8
No prerequisites: Do CS classes offered in your school have prerequisites? (% no)	**68**	**73**
CS offerings (average % positive)	**50**	**53**
About how many different types of CS courses are available in your school this year? (% 1+)	50	54
For each of the CS classes available this year, how many are (% 1+)		
...Introductory level	96	95
...AP courses	19	21
...Other	48	44
As far as you know, is CS taught as part of other classes at your school? (% yes)	40	43
How many school clubs or after-school activities that expose students to CS are at your school? (% 1+)	48	62
CS includes programming: Do the computer science opportunities offered in your school include any of the following elements? ...Computer programming and coding (%)	**48**	**53**

Opportunities & Participation	OH	US
CS growth & participation (average % positive)	**39**	**46**
[Of those offering CS] In the last 3 years, has CS participation increased, stayed about the same, or decreased? (% increased)	42	51
In the next 3 years, will the number of opportunities to learn CS in your school increase, stay the same, or decrease? (% increase)	43	49
Students who learn CS: How often are students who learn CS at your school (% usually/sometimes)		
...Girls	22 /56	27 /54
...White/Caucasian	67 /25	60 /32
...Black/African-American	18 /40	21 /43
...Hispanic/Latino	14 /30	21 /44
...Asian	18 /32	26 /41

School Infrastructure	OH	US
Demand for CS (average % positive)	**24**	**27**
Demand for CS education among parents in your school is (%)		
...High	7	7
...Increasing	31	36
Demand for CS education among students in your school is (%)		
...High	13	14
...Increasing	45	49
Support for CS (average % positive)	**32**	**37**
CS education is currently a top priority for my school. (% agree)	20	24
My school board believes CS education is important to offer in our schools. (% agree)	37	43
The majority of teachers and counselors in my school think it is important to offer CS. (% agree)	39	45
Teacher availability (average % positive)	**41**	**48**
I could easily identify a staff member with the skills and knowledge to teach a CS course. (% agree)	51	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)	32	40
Barriers		
As far as you know, why doesn't your school offer any ways to learn computer science? Select all that apply. (%)		
...We have to devote most of our time to other courses that are related to testing requirements and computer science is not.	52	47
...There is not enough money to train or hire a teacher.	50	44
...There are no teachers available at my school with the necessary skills to teach computer science.	48	42
What was the largest barrier your school had to overcome to offer CS? (%)		
...There was not enough money to train or hire a teacher.	19	13

K-12 Computer Science Education

Pennsylvania

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.

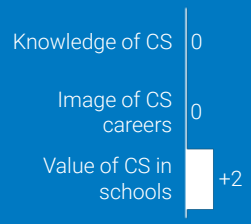
These data are from a multi-year Google-Gallup study of U.S. students, parents, teachers, principals, and superintendents.

g.co/cseduresearch

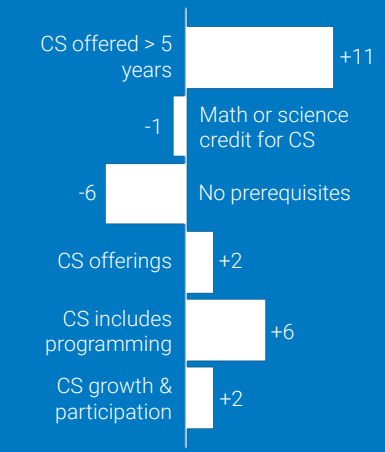
Pennsylvania principals more often perceive value, growth, and support in CS and report they have a CS qualified teacher, compared to the U.S. average. A greater portion also indicate offering CS classes, with more offered for over five years and including programming, though fewer are introductory or AP classes and more have prerequisites.

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

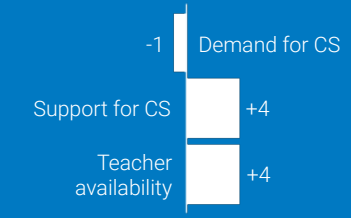
Knowledge & Perceptions



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 Pennsylvania.

Findings

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

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

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

- **Parents' demand for CS is not heard**; 91% of U.S. parents want their child to learn CS, whereas only 6% of Pennsylvania principals believed there was high demand for CS (U.S. average 7%).
- **Principals perceive low school board and staff support for CS** in Pennsylvania at 41% (U.S. average 37%).
- **Not enough budget for a CS teacher** (48%), **focus on test preparation for other subject areas** (44%), and **lack of teachers trained in CS** (43%) were reported by Pennsylvania 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.
- **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.
- **Increase qualified CS teachers** through incentives and support of quality teacher preparation and certification.

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

Google

GALLUP

K-12 Computer Science Education

Pennsylvania

Data Tables

The descriptive data tables below show responses by 318 Pennsylvania 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	PA	US
Knowledge of CS (% no to both)	**33**	**33**
Which of the following activities do you consider part of CS? (% no)		
...Creating documents or presentations on the computer	35	35
...Searching the Internet	44	44
Image of CS careers (average % positive)	**87**	**87**
People who do CS make things that help improve lives. (% agree)	84	82
There are a lot of good jobs available in the U.S. for people who know CS. (% agree)	87	90
CS can be used in a lot of different types of jobs. (% agree)	91	89
Value of CS in schools (average % positive)	**73**	**72**
It is a good idea to try to incorporate CS education into other subjects at school. (% agree)	67	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?	72	68
...other elective courses like art, music, and foreign languages?	93	91

Opportunities & Participation	PA	US
CS offered > 5 years: How long has your school offered opportunities to learn computer science? (% greater than 5 years)	**60**	**49**
Math or science credit for CS (% positive to either)	**12**	**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	10	10
...A science requirement	7	8
No prerequisites: Do CS classes offered in your school have prerequisites? (% no)	**67**	**73**
CS offerings (average % positive)	**56**	**53**
About how many different types of CS courses are available in your school this year? (% 1+)	60	54
For each of the CS classes available this year, how many are (% 1+)		
...Introductory level	93	95
...AP courses	19	21
...Other	52	44
As far as you know, is CS taught as part of other classes at your school? (% yes)	48	43
How many school clubs or after-school activities that expose students to CS are at your school? (% 1+)	62	62
CS includes programming: Do the computer science opportunities offered in your school include any of the following elements? ...Computer programming and coding (%)	**59**	**53**

Opportunities & Participation	PA	US
CS growth & participation (average % positive)	**48**	**46**
[Of those offering CS] In the last 3 years, has CS participation increased, stayed about the same, or decreased? (% increased)	52	51
In the next 3 years, will the number of opportunities to learn CS in your school increase, stay the same, or decrease? (% increase)	51	49
Students who learn CS: How often are students who learn CS at your school (% usually/sometimes)		
...Girls	36 /45	27 /54
...White/Caucasian	72 /23	60 /32
...Black/African-American	28 /41	21 /43
...Hispanic/Latino	21 /42	21 /44
...Asian	33 /42	26 /41

School Infrastructure	PA	US
Demand for CS (average % positive)	**26**	**27**
Demand for CS education among parents in your school is (%)		
...High	6	7
...Increasing	39	36
Demand for CS education among students in your school is (%)		
...High	11	14
...Increasing	48	49
Support for CS (average % positive)	**41**	**37**
CS education is currently a top priority for my school. (% agree)	29	24
My school board believes CS education is important to offer in our schools. (% agree)	46	43
The majority of teachers and counselors in my school think it is important to offer CS. (% agree)	48	45
Teacher availability (average % positive)	**52**	**48**
I could easily identify a staff member with the skills and knowledge to teach a CS course. (% agree)	59	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)	44	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.	48	44
...We have to devote most of our time to other courses that are related to testing requirements and computer science is not.	44	47
...There are no teachers available at my school with the necessary skills to teach computer science.	43	42
What was the largest barrier your school had to overcome to offer CS? (%)		
...There was not enough money to purchase the necessary computer equipment.	20	13

K-12 Computer Science Education

Texas

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.

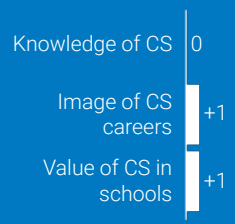
These data are from a multi-year Google-Gallup study of U.S. students, parents, teachers, principals, and superintendents.

g.co/cseduresearch

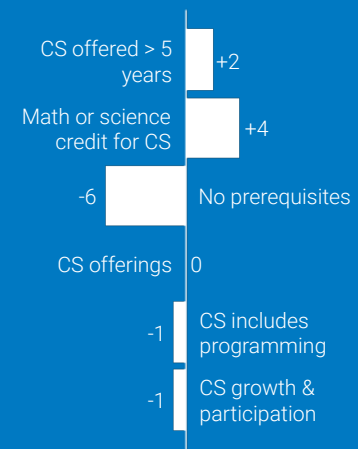
Responses from Texas principals are similar to the average U.S. principal, with a slightly greater portion who report offering AP CS and afterschool CS programs, though CS classes more often have prerequisites. A greater portion of Texas principals also indicate support for CS in their school, yet less believe they have qualified teachers.

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

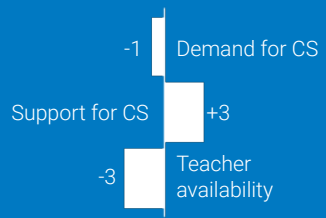
Knowledge & Perceptions



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 Texas.

Findings

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

- **Most confuse CS as basic computer literacy**. In Texas, only 33% of principals surveyed correctly identified computer literacy activities as *not* computer science (U.S. average 33%).
- **CS offerings are limited**, with 26% of Texas principals reporting offering CS classes with programming and coding (U.S. average 26%).
- **CS offerings often appeal to and serve a subset of students**. Texas principals report CS students are mostly White; but, when compared to the U.S. average, fewer indicate CS students are girls or White and more indicate they are Hispanic.

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

- **Parents' demand for CS is not heard**; 91% of U.S. parents want their child to learn CS, whereas only 9% of Texas principals believed there was high demand for CS (U.S. average 7%).
- **Principals perceive low school board and staff support for CS** in Texas at 40% (U.S. average 37%).
- **Focus on test preparation for other subject areas** (43%), **lack of teachers trained in CS** (38%), and **not enough budget for a CS teacher** (33%) 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.
- **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.
- **Increase qualified CS teachers** through incentives and support of quality teacher preparation and certification.
- **Prioritize funding** to meet the demand for CS.

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

Google

GALLUP

K-12 Computer Science Education

Texas

Data Tables

The descriptive data tables below show responses by 700 Texas 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	TX	US
Knowledge of CS (% no to both)	**33**	**33**
Which of the following activities do you consider part of CS? (% no)		
...Creating documents or presentations on the computer	35	35
...Searching the Internet	47	44
Image of CS careers (average % positive)	**88**	**87**
People who do CS make things that help improve lives. (% agree)	83	82
There are a lot of good jobs available in the U.S. for people who know CS. (% agree)	90	90
CS can be used in a lot of different types of jobs. (% agree)	90	89
Value of CS in schools (average % positive)	**73**	**72**
It is a good idea to try to incorporate CS education into other subjects at school. (% agree)	70	70
Most students should be required to take a computer science course. (% agree)	59	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?	73	68
...other elective courses like art, music, and foreign languages?	91	91

Opportunities & Participation	TX	US
CS offered > 5 years: How long has your school offered opportunities to learn computer science? (% greater than 5 years)	**51**	**49**
Math or science credit for CS (% positive to either)	**17**	**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	12	10
...A science requirement	10	8
No prerequisites: Do CS classes offered in your school have prerequisites? (% no)	**67**	**73**
CS offerings (average % positive)	**53**	**53**
About how many different types of CS courses are available in your school this year? (% 1+)	55	54
For each of the CS classes available this year, how many are (% 1+)		
...Introductory level	94	95
...AP courses	28	21
...Other	43	44
As far as you know, is CS taught as part of other classes at your school? (% yes)	34	43
How many school clubs or after-school activities that expose students to CS are at your school? (% 1+)	65	62
CS includes programming: Do the computer science opportunities offered in your school include any of the following elements? ...Computer programming and coding (%)	**52**	**53**

Opportunities & Participation	TX	US
CS growth & participation (average % positive)	**45**	**46**
[Of those offering CS] In the last 3 years, has CS participation increased, stayed about the same, or decreased? (% increased)	47	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	20 /60	27 /54
...White/Caucasian	49 /40	60 /32
...Black/African-American	18 /45	21 /43
...Hispanic/Latino	26 /54	21 /44
...Asian	23 /44	26 /41

School Infrastructure	TX	US
Demand for CS (average % positive)	**26**	**27**
Demand for CS education among parents in your school is (%)		
...High	9	7
...Increasing	35	36
Demand for CS education among students in your school is (%)		
...High	13	14
...Increasing	46	49
Support for CS (average % positive)	**40**	**37**
CS education is currently a top priority for my school. (% agree)	26	24
My school board believes CS education is important to offer in our schools. (% agree)	48	43
The majority of teachers and counselors in my school think it is important to offer CS. (% agree)	48	45
Teacher availability (average % positive)	**45**	**48**
I could easily identify a staff member with the skills and knowledge to teach a CS course. (% agree)	54	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)	37	40
Barriers		
As far as you know, why doesn't your school offer any ways to learn computer science? Select all that apply. (%)		
...We have to devote most of our time to other courses that are related to testing requirements and computer science is not.	43	47
...There are no teachers available at my school with the necessary skills to teach computer science.	38	42
...There is not enough money to train or hire a teacher.	33	44
What was the largest barrier your school had to overcome to offer CS? (%)		
...There were no teachers available at my school with the necessary skills to teach computer science.	16	15

K-12 Computer Science Education

Wisconsin

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.

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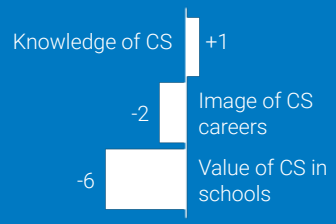
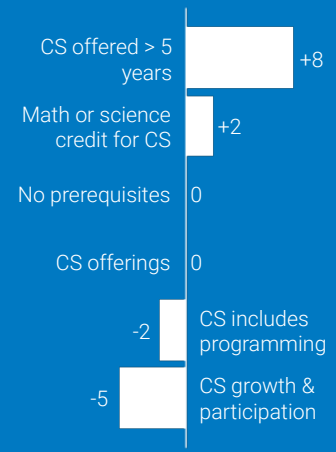
Fewer Wisconsin principals report a positive image and value of CS than the U.S. average. Less have introductory, AP, or afterschool CS; however, more have offered CS for over five years and count it as math or science. A smaller portion indicate growth, demand, and support for CS, yet more report having a teacher qualified for CS.

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

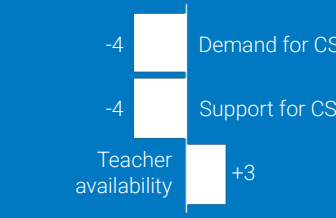
Knowledge & Perceptions



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 Wisconsin.

Findings

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

- **Most confuse CS as basic computer literacy**. In Wisconsin, only 34% of principals surveyed correctly identified computer literacy activities as *not* computer science (U.S. average 33%).
- **CS offerings are limited**, with 24% of Wisconsin principals reporting offering CS classes with programming and coding (U.S. average 26%).
- **CS offerings often appeal to and serve a subset of students**. Wisconsin principals report CS students are mostly White, and they are less often Hispanic or Black compared to the U.S. average.

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

- **Parents' demand for CS is not heard**; 91% of U.S. parents want their child to learn CS, whereas only 5% of Wisconsin principals believed there was high demand for CS (U.S. average 7%).
- **Principals perceive low school board and staff support for CS** in Wisconsin at 33% (U.S. average 37%).
- **Lack of teachers trained in CS** (45%), **not enough demand from parents** (42%), and **not enough budget for a CS teacher** (40%) were reported by Wisconsin 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.
- **Increase qualified CS teachers** through incentives and support of quality teacher preparation and certification.
- **Gauge demand for CS** by actively seeking input from students and parents to inform school leaders and policymakers.
- **Prioritize funding** to meet the demand for CS.

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

Google

GALLUP

K-12 Computer Science Education

Wisconsin

Data Tables

The descriptive data tables below show responses by 327 Wisconsin 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	WI	US
Knowledge of CS (% no to both)	**34**	**33**
Which of the following activities do you consider part of CS? (% no)		
...Creating documents or presentations on the computer	35	35
...Searching the Internet	47	44
Image of CS careers (average % positive)	**85**	**87**
People who do CS make things that help improve lives. (% agree)	78	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)	85	89
Value of CS in schools (average % positive)	**65**	**72**
It is a good idea to try to incorporate CS education into other subjects at school. (% agree)	67	70
Most students should be required to take a computer science course. (% agree)	49	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?	61	68
...other elective courses like art, music, and foreign languages?	86	91

Opportunities & Participation	WI	US
CS offered > 5 years: How long has your school offered opportunities to learn computer science? (% greater than 5 years)	**57**	**49**
Math or science credit for CS (% positive to either)	**15**	**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	13	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+)	53	54
For each of the CS classes available this year, how many are (% 1+)		
...Introductory level	93	95
...AP courses	17	21
...Other	51	44
As far as you know, is CS taught as part of other classes at your school? (% yes)	53	43
How many school clubs or after-school activities that expose students to CS are at your school? (% 1+)	50	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	WI	US
CS growth & participation (average % positive)	**41**	**46**
[Of those offering CS] In the last 3 years, has CS participation increased, stayed about the same, or decreased? (% increased)	49	51
In the next 3 years, will the number of opportunities to learn CS in your school increase, stay the same, or decrease? (% increase)	42	49
Students who learn CS: How often are students who learn CS at your school (% usually/sometimes)		
...Girls	30 /50	27 /54
...White/Caucasian	74 /20	60 /32
...Black/African-American	17 /39	21 /43
...Hispanic/Latino	17 /38	21 /44
...Asian	24 /43	26 /41

School Infrastructure	WI	US
Demand for CS (average % positive)	**22**	**27**
Demand for CS education among parents in your school is (%)		
...High	5	7
...Increasing	29	36
Demand for CS education among students in your school is (%)		
...High	12	14
...Increasing	43	49
Support for CS (average % positive)	**33**	**37**
CS education is currently a top priority for my school. (% agree)	19	24
My school board believes CS education is important to offer in our schools. (% agree)	39	43
The majority of teachers and counselors in my school think it is important to offer CS. (% agree)	40	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)	57	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)	43	40
Barriers		
As far as you know, why doesn't your school offer any ways to learn computer science? Select all that apply. (%)		
...There are no teachers available at my school with the necessary skills to teach computer science.	45	42
...There is not enough demand from parents.	42	30
...There is not enough money to train or hire a teacher.	40	44
What was the largest barrier your school had to overcome to offer CS? (%)		
...There were no teachers available at my school with the necessary skills to teach computer science.	19	15

K-12 Computer Science Education

State Reports Methods

The state reports summarize the status of computer science (CS) education from a 2014 survey of 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

Data Sources

The state reports are based on English language web surveys completed by 9,693 K-12 (including elementary, middle and high school) principals between November 11-December 10, 2014. Principals were contacted using a sample provided by an established education sample provider. The sample sources are comprehensive but the data are not representative of all principals currently in the U.S.

We produced state reports for states with 300 or more principal respondents. These are California (n = 709), Florida (n = 349), Georgia (n = 305), Illinois (n = 338), Michigan (n = 400), North Carolina (n = 411), New York (n = 410), Ohio (n = 442), Pennsylvania (n = 318), Texas (n = 700), and Wisconsin (n = 327). Comparisons are made between principals in the state and the overall U.S. principals surveyed in this study (n = 9,693).

In addition to sampling error, question wording and practical difficulties in conducting surveys can introduce error or bias into the findings of public opinion polls.

To ensure that respondents were thinking only about computer science — and not computer use more generally — respondents were provided with a definition of computer science after answering initial questions about computer science activities. In addition, respondents were reminded multiple times throughout the survey that computer science involves using programming/coding to create more advanced artifacts, such as software, apps, games, websites and electronics, and that computer science is not equivalent to general computer use.

Analysis

Positive percentages for survey questions are calculated as indicated in the right column for each question below. Summary percentages by topic for the data tables on the reports are calculated as noted in the "value =" definition from each of the bolded categories below. Percentage point differences are calculated from the difference between the state percent value and the overall U.S. percent value; percentage point differences are rounded after calculations. These percentage point differences from the U.S. are also represented in the charts on the front of the reports.

Knowledge & Perceptions	
Knowledge of CS (value = % no to both, NULL if any are NULL)	
Based on what you have seen or heard, which of the following activities do you consider part of computer science?	
...Creating documents or presentations on the computer [Yes, No, Don't know]	% no
...Searching the Internet [Yes, No, Don't know]	% no
Image of CS careers (value = average % of 3 questions, NULL if any are NULL)	
People who do computer science make things that help improve people's lives. [Strongly disagree, Disagree, Neutral, Agree, Strongly agree, Don't know]	% agree/strongly agree
There are a lot of good jobs available in the United States for people who know computer science. [Strongly disagree, Disagree, Neutral, Agree, Strongly agree, Don't know]	% agree/strongly agree
Computer science can be used in a lot of different types of jobs. [Strongly disagree, Disagree, Neutral, Agree, Strongly agree, Don't know]	% agree/strongly agree

Value of CS in schools (value = average % of 4 questions, NULL if any are NULL)	
It is a good idea to try to incorporate computer science education into other subjects at school. [Strongly disagree, Disagree, Neutral, Agree, Strongly agree, Don't know]	% agree/strongly agree
Most students should be required to take a computer science course. [Strongly disagree, Disagree, Neutral, Agree, Strongly agree, Don't know]	% agree/strongly agree
Do you think offering opportunities to learn computer science is more important, just as important, or less important to a student's future success than	
...required courses like math, science, history and English? [More important, Just as important, Less important, Don't know]	% just as/more important
...other elective courses like art, music, and foreign languages? [More important, Just as important, Less important, Don't know]	% just as/more important
Opportunities & Participation	
CS offered > 5 years (value = % more than 5 years)	
How long has your school offered opportunities to learn CS? [This is the first year, 1 year, 2 years, 3 years, 4 years, 5 years, More than 5 years, Don't know]	% more than 5 years
Math or science credit for CS (value = % selected for either)	
Which of the following describe how credit is given for computer science courses offered at your school? Select all that apply.	
...A math requirement	% selected
...A science requirement	% selected
Prerequisites (value = % no)	
As far as you know, do computer science classes offered in your school have prerequisites? [Yes, No, Don't know]	% no
CS offerings (value = average % of 6 questions, NULL if any are NULL)	
About how many types of computer science courses are available in your school this year? [0, 1-2, 3-5, More than 5, Don't know]*	% with 1 or more
[Of those offering CS] For each of the different computer science classes available in your school this year, how many are? [None, 1, 2, 3, 4, 5, More than 6, Don't know]	
...Introductory level	% with 1 or more
...Advanced Placement (AP) courses	% with 1 or more
...Other	% with 1 or more
As far as you know, is computer science taught as part of any other classes at your school? [Yes, No, Don't know]	% yes
Approximately how many school-sponsored clubs or after-school activities that expose students to computer science are available to students in your school? [0, 1-2, 3-5, More than 5, Don't know]	% with 1 or more
CS includes programming (value = % selected)	
Do the computer science opportunities offered in your school include any of the following elements. Select all that apply.	
...Computer programming and coding*	% selected
CS growth & participation (value = average % of both; NULL if both are NULL)	
[Of those offering CS] Has participation in opportunities to learn computer science in your school increased, stayed about the same, or decreased in the last three years? [Increased, Stayed about the same, Decreased, Don't know]	% increased
Do you expect the number of opportunities to learn computer science in your school will increase, stay the same, or decrease in the next three years? [Increase, Stay the same, Decrease, Don't know]	% increase
Students who learn CS	
Now, please think about the types of students who participate in opportunities to learn computer science at your school. As you read each group below, please indicate whether students who learn computer science in your school are usually from this group, sometimes from this group, not often from this group, or never from this group. [Usually from this group, Sometimes from this group, Not often from this group, Never from this group, Don't know]	
...Girls	% usually/sometimes
...White/Caucasian	% usually/sometimes
...Black/African-American	% usually/sometimes
...Hispanic/Latino	% usually/sometimes
...Asian	% usually/sometimes

*To calculate the overall percentage of principals whose schools offer computer science classes with programming and coding, the total who reported their computer science opportunities include computer programming and coding was divided by the total number of principals who responded to the question about how many types of computer science courses are available.

School Infrastructure	
Demand for CS (value = average % of 4 questions, NULL if any are NULL)	
Which of the following best describes the demand for computer science education among parents in your school? Is demand… …[High, Moderate, Low, Don't know] …[Increasing, Decreasing, Staying the same, Don't know]	 % high % increasing
Which of the following best describes the demand for computer science education among students in your school? Is demand… …[High, Moderate, Low, Don't know] …[Increasing, Decreasing, Staying the same, Don't know]	 % high % increasing
Support for CS (value = average % of 3 questions, NULL if any are NULL)	
Computer science education is currently a top priority for my school. [Strongly disagree, Disagree, Neutral, Agree, Strongly agree, Don't know]	% agree/strongly agree
My school board believes computer science education is important to offer in our schools. [Strongly disagree, Disagree, Neutral, Agree, Strongly agree, Don't know]	% agree/strongly agree
The majority of teachers and guidance counselors in my school think it is important to offer opportunities to learn computer science. [Strongly disagree, Disagree, Neutral, Agree, Strongly agree, Don't know]	% agree/strongly agree
Teacher availability (value = average % of both questions, NULL if any are NULL)	
If the opportunity presented itself to offer a new computer science course at my school, I could easily identify a staff member with the skills and knowledge necessary to teach the course. [Strongly disagree, Disagree, Neutral, Agree, Strongly agree, Don't know]	% agree/strongly agree
If there were new opportunities to offer computer science in your school, would you have to hire a new teacher or is there a teacher currently at your school that could teach computer science? [Would have to hire a new teacher, There is a teacher currently at the school that could teach a new computer science offering, Don't know]	% there is a teacher
Barriers	
As far as you know, why doesn't your school offer any ways to learn computer science? Select all that apply. …There are no teachers available at my school with the necessary skills to teach computer science. …There are no teachers available to hire with the necessary skills to teach computer science. …There is not enough classroom space. …There is not enough money to train or hire a teacher. …We do not have the necessary computer equipment. …We do not have the necessary computer software. …We do not have sufficient budget to purchase the necessary computer equipment. …We do not have sufficient budget to purchase the necessary computer software. …Internet connectivity is poor at my school. …There is not enough demand from students. …There is not enough demand from parents. …There are too many other courses that students have to take in order to prepare for college. …We have to devote most of our time to other courses that are related to testing requirements and computer science is not …Don't know (Programmer: If this option if selected, uncheck all other boxes)	% selected
As far as you know, which of the following barriers was the largest barrier your school had to overcome in order to offer ways to learn computer science? …There were no teachers available at my school with the necessary skills to teach computer science. …There were no teachers available to hire with the necessary skills to teach computer science. …There was not enough classroom space. …There was not enough money to train or hire a teacher. …We did not have the necessary computer equipment. …We did not have the necessary computer software. …There was not enough money to purchase the necessary computer equipment. …There was not enough money to purchase the necessary computer software …Poor internet connectivity …There was little demand from students. …There was little demand from parents …There were too many other courses that students have to take in order to prepare for college.	% selected