Welcome to the National Girls Collaborative Project
National Webinar
Google-Gallup CS Education Data: Further Explorations of Underserved Communities

August 15, 2017
Agenda

• NGCP Vision and Goals
• Google-Gallup CS Education Data:
  – Introduction
  – Positive Perceptions and Value
  – Discrepancies in Access & Exposure
  – Discrepancies in Encouragement
  – Interest and Confidence
  – Limitations and Barriers to Access
• Questions and Closing
The National Girls Collaborative Project (NGCP) brings together organizations that are committed to informing and encouraging girls to pursue careers in science, technology, engineering, and mathematics (STEM).
NGCP Goals

1. **Maximize access** to shared resources within organizations interested in engaging girls in STEM.

2. **Strengthen the capacity** of programs by sharing exemplary practice research and program models.

3. **Use the leverage of a network** to achieve gender equity in STEM.
National Network of Collaborative Teams
Jennifer Wang,
Research Program Manager, Computer Science Education Team, Google
Google-Gallup CS Education Data: Further Explorations of Underserved Communities

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Jennifer Wang
8/15/17
What
Multi-year comprehensive landscape research surveying *awareness*, *perceptions*, *opportunities*, and *limitations* in CS education for K-12
Who (Year 2)

<table>
<thead>
<tr>
<th>Role</th>
<th>Count</th>
<th>Grade</th>
<th>Demographics</th>
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</thead>
<tbody>
<tr>
<td>Students</td>
<td>1,672</td>
<td>7-12</td>
<td>(228 Black, 310 Hispanic)</td>
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<tr>
<td>Parents</td>
<td>1,677</td>
<td>7-12</td>
<td>(197 Black, 264 Hispanic)</td>
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<tr>
<td>Teachers</td>
<td>1,008</td>
<td>1-12</td>
<td></td>
</tr>
<tr>
<td>Principals</td>
<td>9,805</td>
<td>K-12</td>
<td></td>
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<tr>
<td>Superintendents</td>
<td>2,307</td>
<td>K-12</td>
<td></td>
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<tr>
<td><strong>Total</strong></td>
<td>16,469</td>
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Where
Across the U.S., nationally representative
Computer science can involve MANY types of activities. Today we are only going to focus on a specific type of computer science.

For the purposes of this survey, computer science is the study of how computers are designed and how to write step-by-step instructions to get them to do what you want them to do. This is sometimes referred to as computer programming or coding. Computer science includes things like creating software, applications, games, websites and electronics and managing large databases of information.

For the purposes of this survey, computer science does NOT include using a computer to do everyday things, such as browsing the Internet. Please keep this definition in mind as you answer the following questions.
Positive perceptions & value
84% of parents say CS is at least as important as required classes like math, science, history, and English.

60% of administrators & teachers agree CS should be required when available.
But access is not universal yet

40% principals report having CS classes with programming/coding, increasing from 25% in Year 1
Discrepancies in access & exposure
Girls are less aware of CS opportunities on the Internet and in their local community

- As far as you know, are there any **groups/clubs** at your school where students learn CS? (% yes) 48% **Boys**, 39% **Girls**
- Are there opportunities in your **community** for students like you to learn CS outside of school? (% yes) 58% **Boys**, 51% **Girls**
- You are aware of specific **websites** where you could learn computer science on the Internet. (% agree) 69% **Boys**, 62% **Girls**
Boys are more likely to have learned CS and more likely to learn on their own.
Black and Hispanic students have less exposure to computers

Is there an adult in your life who works with computers or other types of technology? (% yes)

How often do you use a computer at your school? (% every school day)

In a typical week, how often do you use a computer at home? (% every day)
Black students are less likely to have access to CS classes in school

- **Are there classes where ONLY CS is taught in your school? (% yes)**
  - White: 58%
  - Black: 47%
  - Hispanic: 59%

- **Is CS taught as part of OTHER classes at your school? (% yes)**
  - White: 53%
  - Black: 44%
  - Hispanic: 56%
Black and Hispanic students are more likely to learn CS outside of the classroom in after-school clubs or groups.
Rural/small-town and urban schools are less likely to have CS learning opportunities

- Of the CS classes available in your school this year, how many are AP courses? (%1+)
- Of the CS classes available in your school this year, how many are total any CS course? (%1+)
- Approximately how many school clubs or after-school activities with CS are available? (%1+)
- Do the CS opportunities in your school include: Computer programming or coding? (of those with CS classes) (% yes)
Rural/small-town parents are less comfortable with tech and less likely to know of CS learning outside school

![Bar Chart]

- **Parent comfort with computers and technology (% very comfortable)**
  - Rural/Small town: 37%
  - Large city: 49%
  - Suburban: 47%

- **Are there opportunities in your community for your child to learn computer science outside of his/her school? (% yes)**
  - Rural/Small town: 37%
  - Large city: 43%
  - Suburban: 54%
Discrepancies in encouragement
Boys are more likely to have been encouraged and see people “like them” in CS

- Has a teacher ever told you that you would be good at computer science? (% yes)
  - Boys: 39%
  - Girls: 26%

- Has a parent ever told you that you would be good at computer science? (% yes)
  - Boys: 46%
  - Girls: 27%

- Of the people you see/read about in media, how often do you see people like you doing CS? (% often, of students who see people doing CS in media)
  - Boys: 21%
  - Girls: 11%
Interest & confidence
Boys are more interested and more confident in learning computer science.

- **How interested are you in learning CS in the future?**
  - Boys: 13% interested, 54% not at all, 34% somewhat, 16% very.
  - Girls: 24% interested, 60% not at all, 16% somewhat, 4% very.

- **How confident are you that you could learn CS if you wanted to?**
  - Boys: 6% not at all, 29% somewhat, 65% very.
  - Girls: 8% not at all, 45% somewhat, 48% very.

- **How likely are you to have a job someday where you would need to know some computer science?**
  - Boys: 12% not at all, 53% somewhat, 35% very.
  - Girls: 17% not at all, 61% somewhat, 22% very.
Black and Hispanic students are more interested in CS, and their parents believe they will learn CS.
Rural and small-town students are just as likely to value and be interested in computer science.

- **How interested are you in learning CS in the future?**
  - Rural/Small town: Not at all interested 58%, Somewhat interested 24%, Very interested 18%
  - Large city: Not at all interested 55%, Somewhat interested 25%, Very interested 16%
  - Suburban: Not at all interested 55%, Somewhat interested 25%, Very interested 20%

- **How likely are you to have a job someday where you would need to know some CS?**
  - Rural/Small town: Not at all likely 30%, Somewhat likely 32%, Very likely 26%
  - Large city: Not at all likely 55%, Somewhat likely 13%, Very likely 14%
  - Suburban: Not at all likely 57%, Somewhat likely 15%, Very likely 15%

- **Computer science can be used in a lot of different types of jobs.**
  - Rural/Small town: Agree 96%, Disagree 2%
  - Large city: Agree 95%, Disagree 3%
  - Suburban: Agree 99%, Disagree 1%
Limitations & barriers to access
less than 3 in 10 parents have expressed support for CS to school officials
Rural and small-town principals are less likely prioritize CS for their students

- Most Students Should be Required to Take a Computer Science Course (% agree)
  - Rural/Small town: 58%
  - Large city: 66%
  - Suburban: 63%

- Computer Science Education is Currently a Top Priority For My School (% agree)
  - Rural/Small town: 23%
  - Large city: 30%
  - Suburban: 30%

- My School Board is Committed to Offering Computer Science in Our Schools (% agree)
  - Rural/Small town: 35%
  - Large city: 40%
  - Suburban: 45%

- Describes the Demand for CS Education Among Parents in Your School (% low)
  - Rural/Small town: 53%
  - Large city: 46%
  - Suburban: 41%
barriers persist

OPPORTUNITIES

Test prep for other subject areas

7 in 10

principals agree it's a good idea to incorporate CS into other subjects

Lack of teachers trained in CS

3 in 5

teachers are willing to spend their own time to learn more about CS
Be thoughtful with CS images and who you support towards CS

Understand the disparate circumstances that students may come from
Computer Science Learning: Closing the Gap
Rural and Small-Town School Districts

Computer science (CS) education prepares students for future opportunities and challenges across every discipline, from business to fashion to agriculture science. Students in the U.S., regardless of what type of community they live in, value CS and see it as important for their future careers, including 86% of rural and small-town students who say they are somewhat or very likely to have a job where they would need to know CS. This summary highlights the CS education disparities for rural and small-town communities, based on nationally representative surveys from 2015-16.

### Background
Residents in rural areas in the U.S. lag behind urban residents in overall educational attainment, potentially limiting exposure to CS learning during higher education. Fewer than two in 10 adults (19.5%) aged 25 or older living in rural areas have a bachelor's degree, compared with 20% living in urban areas. Furthermore, fewer rural residents (91%) use the internet than do urban (99%) residents. With fewer rural residents completing college and using the internet, exposure to CS learning during K-12 and informal learning settings is especially important.

Rural populations are growing at a faster rate than urban populations in many parts of the country. While rural communities tend to be less racially diverse than urban communities -- 76% of rural America is white compared with 64% nationally -- their populations are growing increasingly diverse in terms of race, background, and disabilities. Poverty rates in rural communities in the U.S. are also on the rise and median household incomes are lower than in urban communities ($52,386 vs. $54,296, respectively).

This summary highlights the challenges and opportunities for CS education in rural and small-town school districts in the U.S., which make up nearly half of the U.S. student population. Respondents were asked to identify the type of school district they were associated with -- rural, small town, suburban or large city. This report combines data for rural and small-town residents due to sample size limitations.

### Survey Population Groups

<table>
<thead>
<tr>
<th>Property</th>
<th>Suburban</th>
<th>Small town</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>10%</td>
<td>12%</td>
<td>14%</td>
</tr>
<tr>
<td>Education</td>
<td>15%</td>
<td>17%</td>
<td>19%</td>
</tr>
<tr>
<td>Employment</td>
<td>20%</td>
<td>22%</td>
<td>24%</td>
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### Principal responses

<table>
<thead>
<tr>
<th>Region</th>
<th>Years as Principal in Any School</th>
<th>School Size</th>
<th>Years as Principal in Any School</th>
<th>School Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>15%</td>
<td>17%</td>
<td>19%</td>
<td>21%</td>
</tr>
<tr>
<td>Medium</td>
<td>18%</td>
<td>20%</td>
<td>22%</td>
<td>24%</td>
</tr>
<tr>
<td>Small</td>
<td>21%</td>
<td>23%</td>
<td>25%</td>
<td>27%</td>
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### Student responses

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Region</th>
<th>School Size</th>
<th>Years as Principal in Any School</th>
<th>School Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>10%</td>
<td>12%</td>
<td>14%</td>
<td>16%</td>
</tr>
<tr>
<td>Black</td>
<td>13%</td>
<td>15%</td>
<td>17%</td>
<td>19%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>16%</td>
<td>18%</td>
<td>20%</td>
<td>22%</td>
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Get Involved with NGCP

- Follow us on social media, @NGCProject
- Attend local events and national webinars
- Join your local Collaborative leadership
- Collaborate to serve more girls in STEM
Upcoming Webinar…

PLUM LANDING: Digital Support For Exploring Your Local Environment

Tuesday, August 22, 2017 at 11:00am Pacific

http://ngcproject.org/plum-landing-digital-support-for-exploring-your-local-environment
Thank you for joining us today!