Key Findings from Evaluation of the 2019 GLOBE SRS

Presented at the GLOBE Watercooler Meeting
August 21, 2020

Agenda

Data collected and analyzed for evaluation
What we learned from the data
How the findings relate to your experiences
Questions and discussion
Evaluation Data

Program data
- When, where, how many people and projects

Participant registration
- Teacher and student demographics, school characteristics

Student surveys
- Before and after the SRS (pre and post surveys)

Teacher survey
- After the SRS (post only survey)

Evaluation Questions
- Who participates in the SRS?
- Does participation in the SRS affect students’ science interest and self-efficacy?
- What do students like most and like least about the SRS?
- How satisfied are teachers with the SRS?
Participation in the SRS

<table>
<thead>
<tr>
<th>Region &amp; Dates</th>
<th>Location</th>
<th>Students</th>
<th>Teachers</th>
<th>Partnerships</th>
<th>Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midwest</td>
<td>University of Northern Iowa, Cedar Falls, IA</td>
<td>36</td>
<td>5</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>April 5-6</td>
<td></td>
<td></td>
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<tr>
<td>Northeast/Mid-Atlantic</td>
<td>Boston University, Boston, MA</td>
<td>79</td>
<td>20</td>
<td>5</td>
<td>38</td>
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<tr>
<td>May 31-June 1</td>
<td></td>
<td></td>
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<tr>
<td>Northwest</td>
<td>Seattle, WA</td>
<td>10</td>
<td>5</td>
<td>4</td>
<td>3</td>
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<tr>
<td>May 2-4</td>
<td></td>
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</tr>
<tr>
<td>Pacific</td>
<td>NatureBridge of Golden Gate, Sausalito, CA</td>
<td>71</td>
<td>13</td>
<td>2</td>
<td>26</td>
</tr>
<tr>
<td>April 26-27</td>
<td></td>
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</tr>
<tr>
<td>Southeast</td>
<td>Atlanta, GA</td>
<td>26</td>
<td>9</td>
<td>4</td>
<td>11</td>
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<tr>
<td>May 10-11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Southwest</td>
<td>Mescalero, NM</td>
<td>39</td>
<td>14</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>May 17-19</td>
<td></td>
<td></td>
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<tr>
<td>TOTAL</td>
<td></td>
<td>261</td>
<td>66</td>
<td>21</td>
<td>114</td>
</tr>
</tbody>
</table>

Student Demographics

Grade & Gender

- Grades 4 to 6: 28%
- Grades 7 to 9: 26%
- Grades 10 to 12: 45%

Female, 60%

Prefer not to answer, 2%

Male, 38%
### Student Demographics
#### Race & Ethnicity

- **American Indian or Alaskan Native**: 6%
- **Asian/Pacific Islander**: 5%
- **Black or African American**: 11%
- **Caucasian/White**: 50%
- **Hispanic American**: 20%
- **Multiple ethnicity/other**: 4%
- **Prefer not to answer**: 5%

### Student Demographics
#### Household Income

- **$0 - $25,000**: [Bar Graph]
- **$25,000 - $49,999**: [Bar Graph]
- **$50,000 - $74,999**: [Bar Graph]
- **$75,000 - $149,999**: [Bar Graph]
- **$150,000 and up**: [Bar Graph]
Teacher and School Demographics

- Teachers were majority female (72%)
- Teachers were majority white (82%)
- Teachers’ schools were urban (45%), rural (34%), and suburban (17%)
- 66% of teachers were at schools where at least half the students qualify for free or reduced-price lunch
- 26% of teachers were at schools where at least half the students are English language learners

Student Survey Results
Science Interest & Self-Efficacy

- I am able to learn new things in science.
- I am able to ask good questions to do science research.
- I am able to interpret data in science research.
- I am able to conduct peer review of other students’ science research.

<table>
<thead>
<tr>
<th></th>
<th>Pre-test</th>
<th>Post-test</th>
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</thead>
<tbody>
<tr>
<td>I am able to learn</td>
<td>93%</td>
<td>95%</td>
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<tr>
<td>new things in science</td>
<td></td>
<td></td>
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<tr>
<td>I am able to ask</td>
<td>70%</td>
<td>83%</td>
</tr>
<tr>
<td>good questions to do</td>
<td></td>
<td></td>
</tr>
<tr>
<td>science research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am able to</td>
<td>75%</td>
<td>83%</td>
</tr>
<tr>
<td>interpret data in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>science research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am able to</td>
<td>69%</td>
<td>77%</td>
</tr>
<tr>
<td>conduct peer</td>
<td></td>
<td></td>
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<tr>
<td>review of other</td>
<td></td>
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<tr>
<td>students’ science</td>
<td></td>
<td></td>
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<tr>
<td>research</td>
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</table>

Strongly agree ● Agree

Science Interest & Self-Efficacy

- I am able to construct scientific arguments.
- I am good at science.
- I am proud of my accomplishments in science.
- I get angry when I don’t understand something in science. (Decreased.)
- I am worried I won’t learn all of the things I’m supposed to in science. (Decreased.)
Science Interest & Self-Efficacy
Reduced Worry About Science Learning

Percent agreeing or in the middle with “I am worried I won’t learn all of the things I’m supposed to in science”

Before SRS After SRS
- Low Income Students
- Girls
- Grades 10-12

Science Interest & Self-Efficacy
Narrowing a Household Income Gap

Summed Scale Score (Max 102)

Before SRS After SRS
- Low Income
- Mid Income
- High Income
Science Interest & Self-Efficacy

As asked at the end of the SRS, “did participating in the symposium impact your understanding of the scientific process and what it’s like to do science research?” 79% of students responded affirmatively.

Student Comments

I've never done research on this level or been to an event like this so I learned a lot about the research and review process. -10th grade student, Northeast

It impacted my understanding of the scientific process and what it’s like to do science research. It gave me a better perspective on science. -8th grade student, Southeast

I began to realize the importance of science and research in our lives. The research symposium left a big impact on my life. -10th grade student, Midwest

Participating in this year’s SRS has given me more inspiration and ideas on the scientific process. Doing science research for my project was fun and interesting. -10th grade student, Southwest
Student & Teacher Satisfaction

Student Satisfaction

<table>
<thead>
<tr>
<th>Event</th>
<th>Number of Students Selecting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting scientists</td>
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<tr>
<td>Review from scientists</td>
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<tr>
<td>Research presentations to the reviewers</td>
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<tr>
<td>Evening activities</td>
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<tr>
<td>Meeting other students</td>
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<tr>
<td>Research presentations to other students</td>
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<tr>
<td>Peer review from students</td>
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<tr>
<td>Keynote speaker</td>
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<tr>
<td>Closing ceremony</td>
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<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Opening remarks</td>
<td></td>
</tr>
</tbody>
</table>

Legend:
- Enjoyed most
- Enjoyed least

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Teacher Satisfaction

92% of teachers were satisfied (40%) or very satisfied (53%) with the SRS for themselves

92% of teachers were satisfied (30%) or very satisfied (62%) with the SRS for their students

84% of teachers said “yes,” the SRS improved their ability to integrate science research into their classroom or program

Teacher Comments

“It has made me feel more confident in asking the questions and giving the students more time to discuss and/or explain themselves. Stop rushing them and let them be more creative.” – Teacher, Midwest

“I really learned how to better facilitate scientific writing. I am looking forward to expanding next year. I loved this project!” – Teacher, Southwest

This is a great real world experience for the students. They see a very high level of peer research and have an opportunity to present for STEM professionals. -Teacher, Southwest

The symposium was informative and gave the students an opportunity to engage with other students. However, I did not feel that it was “student-friendly.” There were a lot of speakers, but not many activities. -Teacher, Southeast
Teacher Suggestions

- Fewer speakers targeting younger audience
- More “doing” science
- Teacher viewing of student projects
- Opportunities for students to meet scientists and learn about their field of study
- GLOBE training for teachers
- Introduction to the reviewers

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Thank you!

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