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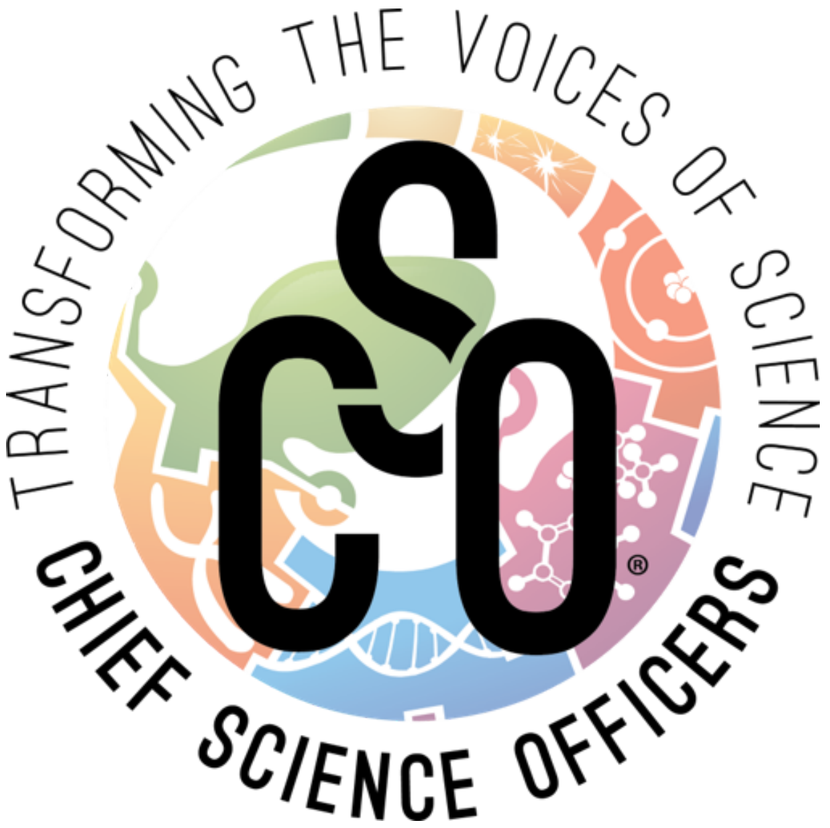
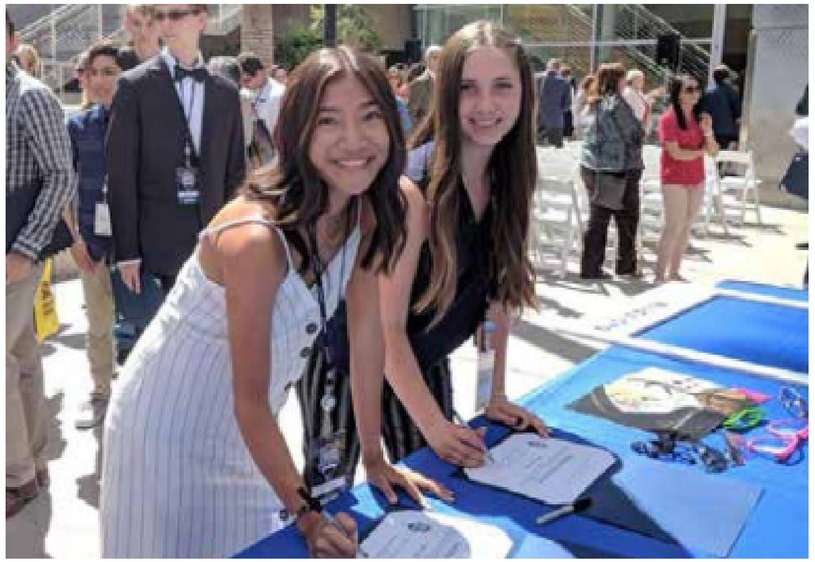
Chief Science Officers

Program Overview



How often do students have a voice...



...in making STEM connections in THEIR communities

...in advocating for STEM in THEIR schools

...in planning the jobs of THEIR future

Challenges Addressed

Declining STEM Student Engagement

“..middle and high school is a critical time for students’ to develop their STEM understanding and experiences yet student interest in STEM typically begins to wane during this time”

Future workers unprepared for 21st Century Workforce

“the majority of employers felt college graduates need to be better prepared to succeed in the workplace…most employers want graduates with both field-specific knowledge and a broad range of skills, such as: teamwork, written and oral communication, decision making, critical thinking, and real-world application skills …”

"What can you do with what you know"

“…it’s more important than ever for our youth to be equipped with the knowledge and skills to solve tough problems, gather and evaluate evidence, and make sense of information…”

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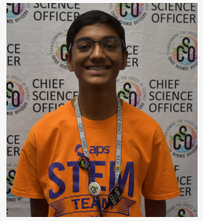
Potvin, P., & Hasni, A. (2014). Interest, motivation and attitude towards science and technology at K-12 levels: a systematic review of 12 years of educational research. Studies in Science education, 50(1), 85-129.

Hart Research Associates. (2015). Falling Short? College Learning and Career Success: Selected Findings from Online Surveys of Employers and College Students Conducted on Behalf of the Association of American Colleges & Universities. Hart Research Associates Washington, DC

Chief Science Officers

Chief Science Officers (CSOs) are 6th to 12th grade student STEM ambassadors who are identified by their peers and demonstrate interest in STEM, innovation and advocacy.



As a CSO, my Action Plan this year includes establishing an Environmental Science Club at my high school to plan community projects like park clean up days and planting trees in our community.
- CSO Nikhil, North High School

CSO Program Goals

1. Cultivate a network of diverse STEM leaders
2. Foster communication & collaboration among CSOs
3. Enrich school STEM culture and career awareness
4. Amplify student voice in STEM conversations in the community

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CSO Experience

Leadership Training Institute

- Intro to CSO program
- Initial action planning
- G-suite
- Communications
- Teambuilding & networking
- STEMonstrations

Year-Round Support

- Bi-Weekly Advisor meetings
- G-suite engagement
- CSO International events
- STEM professional coaches

Cabinet Meetings

- Review Action Plans
- Connect with STEM professionals
- Celebrate progress
- Collect Data

Engagement

- Action Plans
- Community meetings
- CSO International events
- STEM professional coaches

Action Plans

School Communications

- Fun Fact Friday
- Website or Bulletin board
- School Announcements

62,390

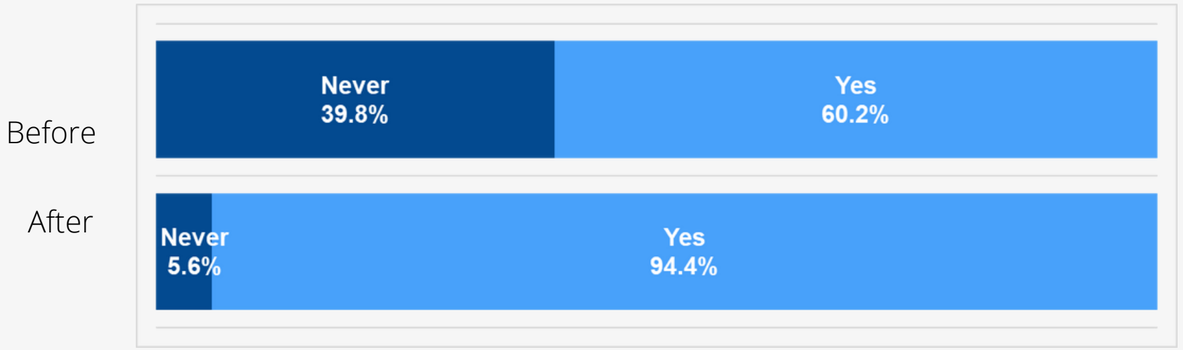
people reached by action plans in 2020/21

School Events & Projects

- STEM Expo/Fair
- STEM Week
- Field trip
- STEM Club
- Makerspace
- Garden
- Guest speakers
- STEMonstrations
- Science Café
- Teach younger grades

CSO Action Plan Data

- The average CSO action plan impacted ~85 people
- 67% of the CSOs indicated their action plan was a new school activity
- Approximately 60% of CSOs had met with their principal prior to joining while post-season nearly 95% had met with their principal.
- The majority of CSOs gained experience in event planning



Peer Feedback at CSO School Events

- 41% indicated the event was their first STEM event attended.
- 95% said event was the same or better than STEM events attended prior.
- 93% rated the event good, very good or excellent.
- 82% said it Increased their interest in the topic.

School Events & Projects

Conference Presentations
Community STEM events

Library Expos
Career Panels

Community gardens
Recycling projects

CSOs as STEM Ambassadors

Planning committees
Board presentations
Television commercials

Podcasts/YouTube
Meetings with elected officials
NSF program director meetings

Community Engagement

Engagement Data

- The more prepared CSOs felt after the LTI, the greater number of community events they supported throughout the year.*
- 29% of CSOs had met with an elected official prior to joining, compared to 43% post season (~48% change).

Collaborator Feedback

- 96% of adults who interacted with CSOs rated these interactions as very good or excellent.
- 72% said they intended to share information about the program with associates.

Advancement Opportunities

DC Summit: OSTP (White House), Congress/Senate, NSF, NASA, DIA, & Policy coaching

Levels

- Level 2: Beginning leadership
- Level 3: Advanced leadership
- Level 4-6: Community action

Leadership Council

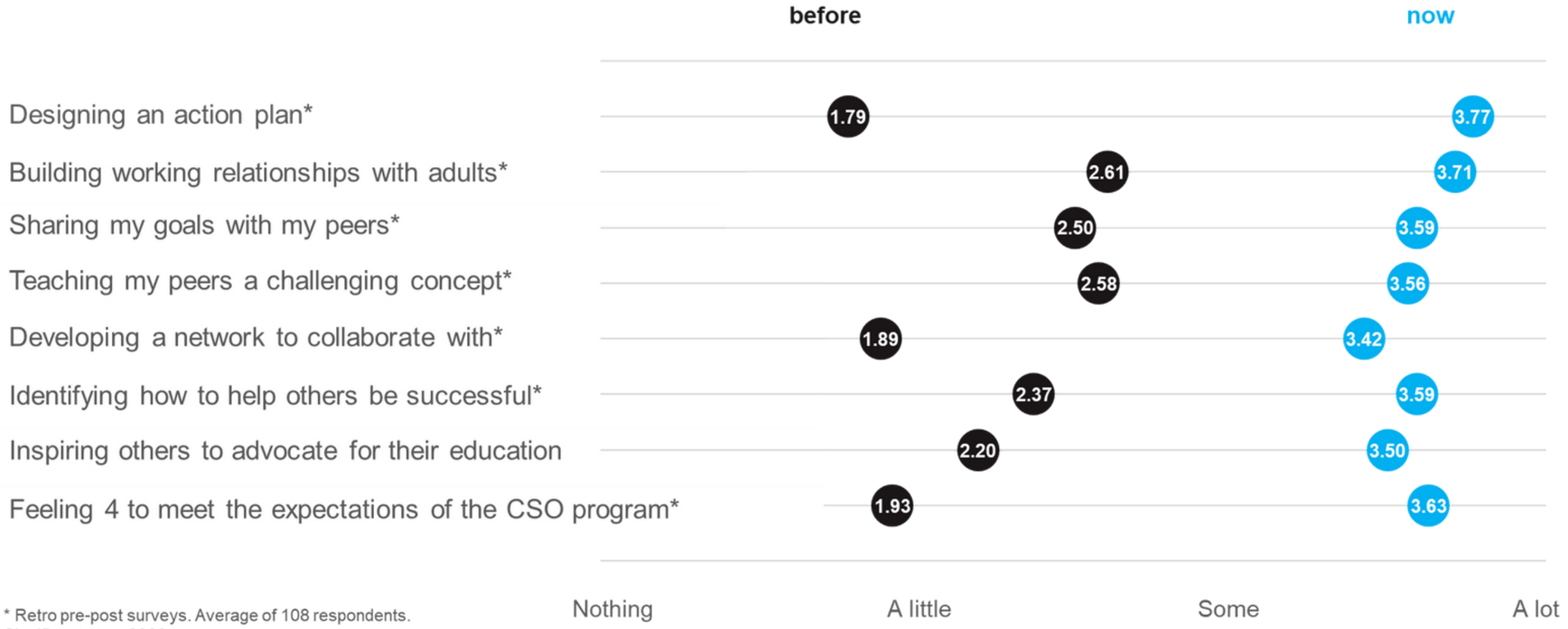
- Cabinet leadership council
- Regional leadership council
- International leadership council

Alumni Association

- Remain connected postsecondary
- Serve as near peer mentors to CSOs
- Continue community engagement projects

CSO Skill Development

CSOs rated their understanding of skills prior to starting the program and at the end of the season. Their understanding significantly increased (*p<0.000, n=108).



* Retro pre-post surveys. Average of 108 respondents. Significant at p<.0000

"I feel like I grew most in my leadership skills, the program made me take charge and enhanced the leader in me."

"I learned, that you have to be bold, and have a plan, and a backup one just In case something doesn't go right. I also learned making an afterschool activity can be hard, and a lot of work"

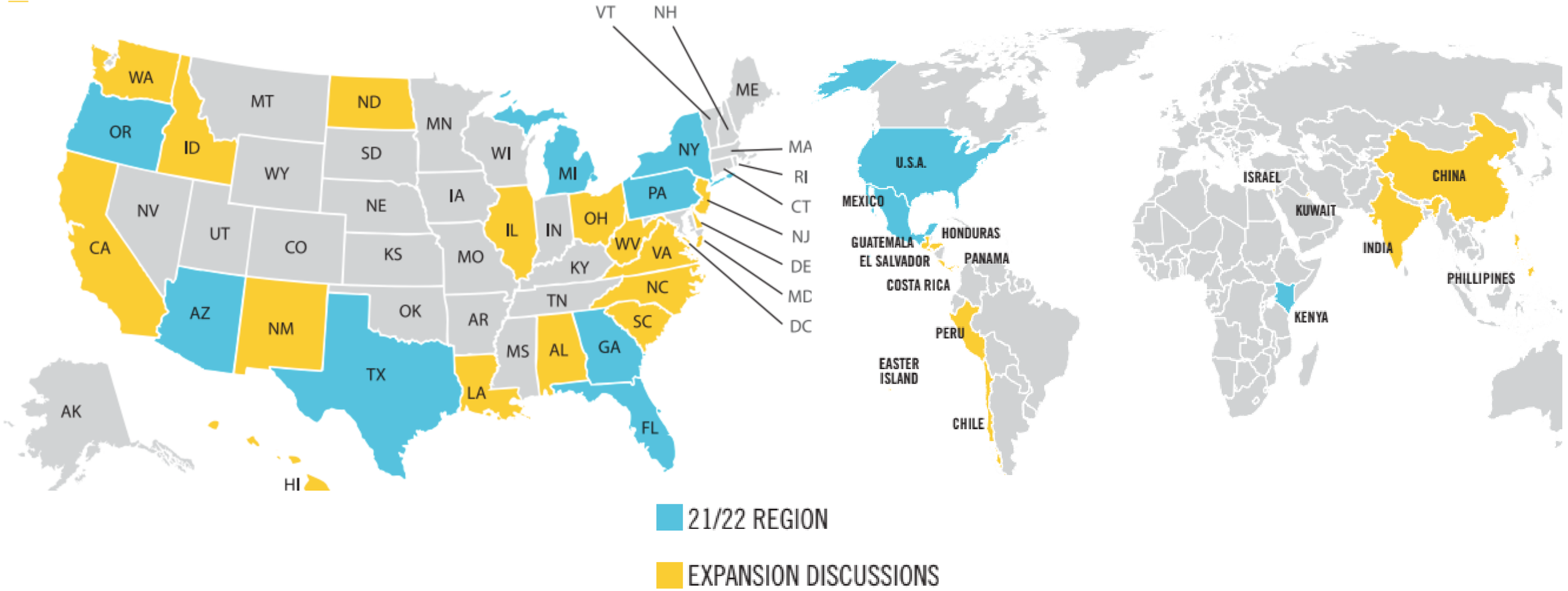
"I learned how to have a voice and be able to teach others about my passion."

"We've learned to expect the unexpected and to always open up our minds."

Network-Wide Partnerships

CSOs have been transformative at driving business and community partnerships.

CSO Program Growth



Thank You

TRANSFORMING THE VOICES OF SCIENCE
CSO
CHIEF SCIENCE OFFICERS