

DAY ONE PROJECT

A Proposal to Amplify Youth Voices in STEM

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The Day One Project offers a platform for ideas that represent a broad range of perspectives across S&T disciplines. The views and opinions expressed in this proposal are those of the author and do not reflect the views and opinions of the Day One Project or its S&T Leadership Council.

Summary

A robust STEM (science, technology, engineering, and math) ecosystem is imperative to our country's national security, international leadership, and economic recovery from the COVID-19 pandemic.¹ Insights into youths' daily lives, ambitions, and concerns for the future are paramount to developing effective and diverse policies that strengthen STEM education, career pathways, and public engagement. Unfortunately, youth voice is too often absent from STEM initiatives and policymaking processes in the United States today.

This memo proposes a joint initiative led by the White House and its Office of Science and Technology Policy, the Department of Education, and other federal agencies to amplify youth voices in STEM. The goals of this initiative are to (1) foster active youth participation in STEM policymaking, (2) position youth to provide critical insights into the future of STEM work, (3) champion youth STEM ambassadors in schools across America, and (4) promote youth engagement in STEM more broadly. Leveraging existing programs such as Jason Learning's Argonaut, Rutgers 4-H STEM Ambassadors, Youth and Educators Succeeding/GenYES, and the Chief Science Officer (CSO) initiatives, this initiative would enable youth to participate in meaningful dialogues with the Biden-Harris Administration and other federal decisionmakers. The proposed initiative aligns with the National Science and Technology Council's goals² of building strong foundations for STEM literacy; increasing diversity, equity, and inclusion in STEM; and preparing the STEM workforce for the future.

Challenge and Opportunity

K–12 youth rarely have a voice in or influence on the policies, programs, and processes that affect them and their opportunities for learning and working.³

This need not—and should not—be the case. Multiple existing programs provide examples of how to successfully amplify youth voices and engagement in STEM, and demonstrate the benefits of doing so. For instance, JASON Learning's Argonaut program⁴ enables students and teachers to work side-by-side with scientists and engineers at research locations around the world. These students and teachers become the eyes and ears for their peers back home, increasing enthusiasm around STEM by sharing their experiences. Similarly, the Rutgers 4-H STEM Ambassador Program⁵ is a collaborative partnership between the Rutgers Cooperative

¹ Herman, A. (2019). America's STEM crisis threatens our national security. *American Affairs*, 3(1): 127–148.

² National Science and Technology Council. (2018). [Charting a course for success: America's strategy for STEM education](#). Executive Office of the President.

³ Ulbig, S.G. (2008). Voice Is Not Enough: The Importance of Influence in Political Trust and Policy Assessments. *The Public Opinion Quarterly*, 72(3): 523–539.

⁴ "Jason's Argonaut Program," Jason Learning, <https://jason.org/argonauts/>.

⁵ "4-H STEM Ambassador Program," Rutgers New Jersey Agricultural Experiment Station, <http://nj4h.rutgers.edu/stem-ambassadors.asp>.

Extension program and New Jersey public schools that provides 9th-grade youth from urban communities with the opportunity to explore Rutgers' research while gaining a better understanding of STEM career opportunities. At the international level, the Youth and Educators Succeeding (YES) nonprofit is collaborating with students and educators to transform education. Its GenYES⁶ program prepares powerful teams of K–12 Student Technology Leaders (STLs) to improve learning through strategic integration of technology. Finally, the SciTech Institute's Chief Science Officers⁷ program has engaged more than 850 6th through 12th-grade STEM advocates from eight states (AZ, FL, GA, MI, NY, OR, PA, and TX) and four countries (the United States, Mexico, Kenya, and Kuwait) to provide their peers, families, and communities to build STEM awareness and learning through action plans, hands-on experiences, and community-impact projects. Programs like these showcase the varied and exciting opportunities for federal investment into youth STEM ambassadorship.

Plan of Action

The Biden-Harris Administration, working through the White House Office of Science and Technology Policy (OSTP), the Department of Education (ED), and other federal agencies, should launch a multipronged initiative to amplify youth voices in STEM.

As a first step, the Biden-Harris Administration should consider launching a U.S. Youth STEM Ambassador program modeled on the Obama Administration's Teach to Lead⁸ program. This program would recruit youth leaders in STEM from across the country to participate on advisory boards and committees structured to provide input on federal policies and programs. These boards and committees would provide youth perspectives from every state, from geographically distributed communities, and from diverse racial, ethnic, and economic backgrounds. This will help federal policies and programs become more inclusive and effective. The success of the Department of Health and Human Services (HHS)'s Young Adult Consultant Program is precedent for the positive impacts that youth advisory committees can have.⁹

ED is well positioned to lead the U.S. Youth STEM Ambassador program, with existing resources that could be allocated to help the program succeed. For instance, ED's stipends to Title I schools and schools serving disproportionately minority and/or low-income students can help ensure equitable access to the program—even in schools without common mechanisms (e.g., robust student government) or the capacity to support student engagement. The ED and OSTP could co-lead an interagency working group, comprising representatives from the National Science Foundation, the National Aeronautics and Space Administration, the Department of

⁶ "The GenYES Program," GenYES, <https://www.genyes.org/genyes>.

⁷ "Connecting STEM in Arizona and Beyond," SciTech Institute, <https://scitechinstitute.org/>.

⁸ "What We Do," Teach to Lead, <https://teachtolead.org/what-we-do/>.

⁹ Department of Health and Human Services. (n.d.). [*Youth Engagement at the Federal Level: A Compilation of Strategies and Practices*](#).

DAY ONE PROJECT

Defense, and other relevant federal agencies, to help develop and grow the program. Organizations that manage similar existing programs at a smaller scale—including JASON Learning, Rutgers, the SciTech Institute, the [STEM Learning Ecosystems](#),¹⁰ and Youth and Educators Succeeding—can provide additional logistical and technical support, and can connect the federal government with youth STEM leaders across the country who could be good candidates for the program. The Administration can also partner with these organizations to disseminate information about federal STEM initiatives and build student interest in pursuing STEM careers.

In addition, the Biden-Harris Administration should explore and pursue other opportunities to embrace youth voices in federal processes and programs. The Administration could encourage top scientists to incorporate youth perspectives into proposals and reports to the President’s Council of Advisors on Science and Technology (PCAST). To help inform White House priorities in STEM. President Biden could create a standing White House Youth STEM Advisory Council comprising youth representatives of communities across the United States. To showcase discoveries and inventions by young scientists, President Biden could reboot the White House Science Fair¹¹ and/or host a Champions of Change¹² awards ceremony for youth STEM leaders. Opportunities for increasing youth representation in the federal STEM-policy landscape are myriad.

Conclusion

Youth talent and perspectives are largely excluded from the federal STEM-policy landscape. Though youth are major stakeholders in federal programs and policies intended to enhance STEM education or grow the STEM workforce pipeline, their voices almost always go unheard. The Biden-Harris Administration can and should change the status quo. Through an interagency initiative to build a national network of youth STEM ambassadors, position youth to participate directly in federal STEM-policy processes and lift up the accomplishments of our nation’s young STEM leaders, the Biden-Harris Administration can empower the next generation of STEM leaders to begin making positive impacts today.

Student Statement of Support

The undersigned student Chief Science Officers have expressed their support for this proposal through the following statement:

¹⁰ STEM Ecosystems, <https://stemecosystems.org/>.

¹¹ See <https://obamawhitehouse.archives.gov/science-fair>.

¹² See <https://obamawhitehouse.archives.gov/champions>.

DAY ONE PROJECT

“ As Chief Science Officers representing multiple states, we have seen firsthand the power of being a part of a STEM ambassador program to positively impact our and our communities’ futures. We sign on in support of this proposal as we hope that as many students and communities can have the benefits of a STEM ambassador program, just like we have. ”

Amanda Broadnax, GA
Kiersten Schindler, NY
Prisha Shroff, AZ

Hailey Stuben, OR
Lauren Elizabeth Salaz, AZ
Shalae Clemens, AZ

Jonathan M. Chang, AZ
Lucas J Elliott, OR
Valentina Lopez, AZ



Frequently Asked Questions

Why should the federal government be promoting STEM ambassadors?

Local and state governments inherently control education, and the proposed initiative will not infringe upon this. Instead, it will give youth STEM and leadership programs credibility and allow state departments of education, school boards, district administrators, principals, and educators to understand the benefits of youth leadership and engagement.

Why should ED stipends be used to help implementing the U.S. Youth STEM Ambassador program?

All students, particularly those from Title I schools and schools serving disproportionately low-income and/or high-minority populations, should have access to high-quality STEM experiences and a voice in conversations that impact them. Stipends will ensure that all youth, regardless of ethnicity, income, or geographic location, get the chance to learn about the U.S. Youth STEM Ambassador program and the opportunity to participate.

How will U.S. Youth STEM Ambassadors be selected?

Nominations for the program could be made through various channels, including self-nominations, nominations by educators or school administrators, or nominations by peers and will be handled on the individual school level. For higher positions in the program ED should create an advisory board to aide in the selection of national representatives.

About the Author



Caillou Peña is a sophomore at Carnegie Mellon University. He is an alumnus of the Chief Science Officer program and has seen firsthand the tremendous impact that the program has on youth participants and the communities they represent. He attributes many of his professional skills, including communication and leadership, to the training and experiences he received while in the program. Knowing how powerful this program can be, he believes that every student in America should have the chance to serve as a STEM ambassador.

About the Day One Project

The Day One Project is dedicated to democratizing the policymaking process by working with new and expert voices across the science and technology community to develop actionable policies that can improve the lives of all Americans. For more about the Day One Project, visit dayoneproject.org

