



June 25, 2014

Dr. John Holdren
Assistant to the President for Science and Technology
Director of the White House Office of Science and Technology Policy
The White House

Dear Dr. Holdren:

As an alliance of more than 500 education, business, and professional organizations from across the country, the STEM Education Coalition is united in the goal of advocating for policies that will improve science, technology, engineering, and mathematics (STEM) education at every level. We believe very strongly that STEM education must be elevated as a national priority as reflected through education reforms, policies to drive innovation, and federal spending priorities.

It has been a pleasure to work with you and your colleagues in the White House and across the federal agencies over the past several years in pursuit of shared goals to improve STEM education for our nation's students. We also sincerely appreciate President Obama's personal commitment to STEM education as an Administration priority.

Many of our Coalition members were pleased to attend a recent session held in April at the White House to provide the STEM stakeholder community with an opportunity to share input on the Administration's plans on a number of different policy topics and offer feedback on the Federal STEM Education 5-Year Strategic Plan. Following this session, we thought it appropriate to respond to you in writing with a number of recommendations relative to this plan and also on broader policy matters related to STEM education that have been raised by Administration budget proposals.

Before we offer specific recommendations, we want to first thank you and your team at the Office of Science and Technology Policy for taking the time to organize and host the April STEM stakeholders meeting. We recognize the amount of time and energy necessary for such an undertaking and want to commend you for taking on this task. In particular, we appreciate the efforts of Dr. Danielle Carnival of your staff in organizing the meeting. We found this session to be a useful starting point and one that we hope will be a strong first step forward in what is a vital undertaking to advance the federal government's efforts to promote and improve STEM education over the long term.

The remainder of this letter will convey a range of policy recommendations from our Coalition on two fronts: First, several broader policy recommendations on the Administration's overall direction on STEM education policies; and second, changes we would seek to the implementation of the 5-Year Strategic Plan. Please appreciate these recommendations as those of a critical partner that shares many of the Administration's goals with regard to STEM education improvements. A listing of the members of the Coalition's Leadership Council, which develops and guides our public policy agenda is included as Appendix A to this letter.

Broader STEM Education Policy Recommendations for the Administration

An Evidence-Based Approach to the Management of Federal STEM Programs

Our Coalition has a long history of support for comprehensive and strategic efforts to coordinate, evaluate, and review all federal STEM programs on a regular basis to ensure that effective programs are scaled up and that underperforming programs are improved or eliminated. We believe that effective policies to manage the federal STEM education portfolio should be evidence-based and must be informed by a strong and supportive community of stakeholders in the business, professional, research, and education communities. Scaling up what we can agree works is critical to improving real learning opportunities for the millions of students who must succeed in STEM fields in the future.

While we applaud the Administration's commitment to taking on the daunting task of improving the organization of federal STEM programs, we also urge the Administration to be more forthcoming in explaining the evidentiary basis of many of its decisions regarding the elimination or consolidation of specific programs, a concern that has been similarly echoed by many within Congress. We feel a shared sense of responsibility for many of these decisions and urge the creation of a robust mechanism to solicit and include STEM education community input in decisions made by federal agencies on prioritization and organization of STEM education programs. Our Coalition issued a detailed set of recommendations regarding federal agency budget priorities in May of 2013 in response the Administration's FY 2014 budget proposals and we maintain our support of the goals articulated in this letter¹.

¹ <http://www.stemedcoalition.org/wp-content/uploads/2010/05/Letter-STEM-Ed-Coalition-to-Appropriators-on-Budget-5-20-13.pdf>

A Balanced Approach to Federal Resources for STEM Education at the Department of Education

Since its early days, the Administration has integrated STEM education activities as a priority, along with other considerations, in many of its flagship education reform programs, such as Race to the Top and the Investing in Innovation initiative. We certainly appreciate this emphasis, but have also pressed for a greater emphasis on expanding the range and scope of dedicated sources of federal funding to support activities that are solely focused on STEM-specific outcomes.

It is lamentable that, given the \$67 billion annual budget for the Department of Education, that the largest single program at the Department devoted exclusively to STEM-related purposes is the \$150 million Math and Science Partnerships program, which supports professional development activities for STEM educators in every state. While this program has shown excellent results in independent evaluations, it is funded at a fraction of its authorized level of \$450 million. If we are to truly deal with the challenge of improving how our students are learning in the STEM subjects, we must do a better job of scaling up effective and proven programs to reach a larger number of students.

Our Coalition also supports a balanced approach to the use of both formula-based and competitive funding mechanisms to promote STEM-related educational activities. In addition to supporting the Math and Science Partnerships program, we have also supported efforts like the Administration's proposed STEM Innovation Networks, which would provide large-scale competitively awarded grants to a small number of states pursuing aggressive STEM-oriented reforms. We are hopeful that the Administration's next round of Elementary and Secondary Education Act reform proposals reflect this desirable balance.

Accountability is (Still) a Central STEM Issue

We remain concerned about the potential negative impacts of the changing landscape of federal accountability systems on student outcomes in STEM subjects. Our Coalition has long supported the inclusion of student performance in science alongside math and reading as a required element of K-12 educational accountability systems. Several recent studies have indicated that instructional time spent on science is continuing to decline at the K-12 level. The subject of K-12 accountability systems is not raised in any way in the 5-Year STEM Strategic Plan and we urge the Administration to ensure that the current state-by-state waiver system does not inadvertently contribute to a diluted focus on the STEM subjects in general, and reduced emphasis on science in particular.

Designation of Lead Federal Agencies for Undergraduate, K-12, and Informal Education

We note from the FY14 and FY15 Budget Requests that the Administration has designated three lead agencies for K-12 (Dep. of Education), undergraduate (National Science Foundation) and informal (Smithsonian) education activities. While we appreciate the designation of so-called “lead” agencies for logistical and inter-agency management reasons, we caution that these designations have been perceived quite differently in the STEM education stakeholder community. For example, the designation of the NSF as the lead undergraduate STEM education agency has fed a widespread perception that NSF would be scaling back its existing efforts to support improvements in the K-12 space. Similarly, the designation of the Smithsonian as the lead for federal informal STEM education efforts has created significant confusion for groups in the informal education community, as the Smithsonian has a rather narrowly defined mission in this area. A clarification of the meaning and implications of these designations would be of great use. In addition, there are many other agencies with significant assets that are assisting with strengthening STEM education, and we would like to see assurance that they will remain involved.

Cultivation of Long-Term Congressional Support for Administration STEM Priorities

Our Coalition has been extensively engaged in efforts on Capitol Hill over the last several years to reauthorize the Elementary and Secondary Education Act, Higher Education Act, and other legislative vehicles that deal with major education policies. Over the next two years, we welcome the opportunity to work with you and others in the Administration to productively engage Congress to advance STEM education-related policies. There are many areas of STEM education policy where there is substantial agreement between policymakers from different parties.

Integration of Other Related Initiatives with STEM Strategies

The Administration has initiated a number of exciting and bold initiatives that have missions that are complimentary to improving STEM education outcomes, such as ConnectED, the White House Jobs Council, the President's Ocean Policy and Climate Action Plan and the Vice President's current review of Job Training Programs. We see great value in integrating these initiatives more closely with ongoing policy initiatives that are more STEM-focused.

Specific Recommendations on the 5-Year STEM Strategic Plan

Since the release of the 5-Year STEM Strategic Plan by the National Science and Technology Council's Committee on STEM Education (Co-STEM) in May of 2013, our Coalition has closely followed the Administration's efforts across the federal agencies to develop and implement widespread coordination activities and plans. Initially, it was not clear how much influence this plan would have over the day-to-day management of federal STEM programs – as many such plans like this often gather dust on the proverbial shelf. Looking back after one year of work, we compliment the Administration on its commitment to turn the plans contained into this document into a living, breathing reality.

STEM Stakeholder Participation in Interagency Coordination Efforts

One topic raised at the April White House STEM stakeholders meeting was that of the opportunity for members of the STEM community to participate on a regular basis in the meetings of the 5 different issue area working groups established under the strategic plan. We would encourage the Administration to make these meetings open to our community in the future. You have our commitment to participate in them, along with a similar commitment to devote our time and energy to their success.

Transparency in the Coordination of Graduate Fellowship Programs

One of the specific goals of the Strategic Plan is to “develop a coordinated Federal approach to fellowships that increases efficiency and effectiveness for agencies and applicants, including ‘one stop shopping’ features.” In Administration past budget proposals, this was planned to occur by consolidating many of the graduate fellowship functions that exist in disparate federal agencies under the banner of the National Science Foundation. While NSF is a trusted science agency, we urge the Administration to develop a robust mechanism to share more information about how the various disciplinary areas within the STEM fields that were being cultivated by mission agencies with close ties with particular fields will be treated under the coordinated arrangements envisioned in the Strategic Plan. In particular, it is of great interest how the various advisory bodies that provide guidance to NSF's graduate fellowship program might adjust their membership to help address this challenge. Finally, we are delighted that NSF is working with the mission agencies to provide internship opportunities at those agencies for their graduate fellows.

Developing the Evidence Base Around Promising STEM Education Practices

We appreciate the inclusion of a specific set of goals and actions to “conduct rigorous STEM education research and evaluation to build evidence about promising practices and program effectiveness, use across agencies, and share with the public to improve the impact of the Federal STEM education investment.” It would be helpful if the Administration would clarify the evidenced-based practices that should be employed by similar programs.

We strongly value the role of research and see the need to support programs that employ evidence-based practices. This is an area where we know that the STEM education community can provide useful assistance to federal agencies in terms of helping to identify specific gaps in knowledge around particular education activities related to the STEM subjects. We would urge the Administration to establish an early feedback mechanism as plans and assessments are developed in this area. It is also a common overgeneralization to view small educational programs as inherently ineffective. Therefore, a key aspect of the federal management strategy is building up our capacity to critically and properly evaluate these programs. There is no single performance measure – such as impacts on test scores – that will work for every program.

Revisit the Smithsonian Informal STEM Education Activity

The Administration has proposed a new STEM education initiative at the Smithsonian. This initiative, which would be coordinated by the Center for Learning and Digital Access, proposes to create new online STEM resources for students and teachers that are aligned to the learning standards set by the states. This initiative also appears to consolidate a number of informal, afterschool, and outside-the-classroom education efforts being conducted at other science agencies. We appreciate the goal of better aligning such programs across multiple agencies; however, to date we have seen no details yet about how this initiative might work in practice.

We recommend that the Administration revisit its plans for this initiative by directing the federal agencies that currently support afterschool, summer and other out-of-school-time programs to engage their stakeholders to determine how informal learning can be better integrated into the strategic plan. The continued “silo-ing” of informal and formal education does not allow for cultivation of a STEM ecosystem that draws on the strengths of the various players and allows for better use of limited resources. Additionally, the latest research and findings about informal science education goals, outcomes and assessments must be reflected in the strategic plan in order to take full advantage of the sophistication of the informal science education field.

The Important Role of the Mission Agencies:

The mission agencies support STEM education to meet their specific missions and workforce needs. These agencies leverage unique facilities, sophisticated equipment, extensive datasets and a highly trained technical workforce. They provide role models and mentors and experts capable of demonstrating the tremendous value to society of STEM education. These agencies place a high value on developing a strong and skilled STEM talent pool, and therefore bring a level of passion and creativity to their work that is inspiring and motivating to students. We urge the Administration to think more carefully about the value of the mission agency programs and their potential to make a significant contribution to the broader STEM education effort.

We appreciate the opportunity to share our views with you and look forward to working with you closely as the Administration proceeds with the implementation of the 5-Year Strategic Plan.

Respectfully,

A handwritten signature in black ink that reads "James F. Brown III". The signature is written in a cursive style with a horizontal line at the end.

James F. Brown
Executive Director

Appendix A: Members of the STEM Education Coalition Leadership Council

Chair: [National Science Teachers Association](#)

Co-Chairs

- [American Chemical Society](#)
- [ASME](#)
- [Education Development Center, Inc.](#)
- [Hands-On Science Partnership](#)
- [Microsoft Corporation](#)
- [National Council of Teachers of Mathematics](#)

Council Members

- [Afterschool Alliance](#)
- [American Association of Colleges for Teacher Education](#)
- [American Farm Bureau Foundation for Agriculture](#)
- [American Society for Biochemistry and Molecular Biology](#)
- [American Society for Engineering Education](#)
- [American Society of Civil Engineers](#)
- [American Statistical Association](#)
- [ASHRAE](#)
- [Association for Computing Machinery](#)
- [Association of Public and Land-grant Universities, APLU](#)
- [Battelle](#)
- [Business-Higher Education Forum](#)
- [Cable in the Classroom](#)
- [Campaign for Environmental Literacy](#)
- [Education Testing Service, ETS](#)
- [Entertainment Industries Council](#)
- [ExxonMobil](#)
- [IEEE-USA](#)
- [Illinois Math and Science Academy/Committee for the Advancement of STEM Speciality Schools](#)
- [John Wiley & Sons, Inc.](#)
- [National Association of Manufacturers](#)
- [National Instruments](#)
- [Project Lead the Way](#)
- [RSA Conference](#)
- [Texas Instruments](#)
- [Time Warner Cable](#)
- [Universal Technical Institute](#)

Link to: [Affiliate Members of the STEM Education Coalition](#)