



Recommendations for Supporting STEM in The Every Student Succeeds Act

Every child deserves access to quality educational experiences that provide the skills and knowledge they will need to be successful. We know that access to a well-rounded education is critical in meeting that goal and that exposure to high-quality science, technology, education, and mathematics (STEM) courses and programming will better prepare students for success in work, college, and beyond, and also better equip our nation to compete in the global economy. For our students to have access to the STEM education they deserve we need to recruit and support great STEM teachers.

The Every Student Succeeds Act (ESSA), presents a significant opportunity to enhance the great work underway in so many communities across the country to make STEM learning a priority and build the STEM human capital pipeline. The new law recognizes the critical need to solicit feedback from interested stakeholders who care about the work of advancing educational opportunity – including nonprofits, institutions of higher education, foundations, and teacher organizations – and creates many occasions for stakeholders to weigh-in. Most significantly, ESSA gives every community member a voice in advocating for how the law will be implemented because, as opposed to No Child Left Behind, ESSA leaves the most critical programmatic and funding decisions to states, districts, and schools.

This resource includes suggested recommendations for “Every Student Succeeds with STEM” co-investing partners’ use as they seek to promote policies that advance high-quality STEM learning, by bringing new, excellent STEM educators into the classroom, supporting the work of existing STEM teachers, and enabling high-quality STEM learning for all students. Principally, this resource recommends that stakeholders focus on three separate, but mutually reinforcing, areas in ESSA implementation: unlocking federal funds to support STEM activities; addressing issues of equity through STEM; and including STEM as a school improvement strategy.

I. Unlocking Federal Funds to Support STEM Activities

Background

ESSA is fundamentally a law aimed at improving educational opportunity for all students. The policy requirements in the law have a significant impact on teaching and learning and drive much of the conversation around the federal role in education. But at its core, the law provides sets guidelines for how states, districts, and schools can get resources to students who need them the most. In two letters this year (the [first](#) on January 18, 2017, and the [second](#) on April 17, 2017), the Department of Education released thorough guidance detailing the types of STEM learning that could be supported through ESSA, including opportunities for STEM teachers. The guidance represents a strong resource on which stakeholders can rely when exploring how to leverage ESSA to support STEM activities in their school, local communities, or their states. While it is recommended that organizations look through the guidance in detail, below are a few high-impact recommendations worth pursuing as advocates engage with policymakers charged with implementing the law.

Recommendations

- **Incentivize the Hiring and Retention of Great STEM Teachers & Leaders**, such as by awarding funding to districts, institutions of higher education, or non-profits to recruit and train great STEM teachers, and to identify and support STEM teacher leaders.
- **Increase Access to STEM Coursework and Programming**, including through the hiring and preparation of educators who can teach advanced, rigorous coursework in STEM, including coursework that will allow students to gain college credit while in high school, or through the establishment or expansion of high-quality before, after, and summer school programs.
- **Support educators as they transition to high-quality, college- and career-ready standards and assessments** in STEM disciplines (e.g. the Next Generation Science Standards), through high-quality professional development.
- **Enrich STEM Teaching and Learning through the acquisition and use of technology and equipment** by making investments in: STEM-related labs and lab materials; software and devices to increase access to digital resources for students and teachers; the creation of newer program and spaces to encourage experiential learning, such as fab labs, maker spaces, or robotics programs.

A Note on Current Funding Issues

To fully realize the vision of these new funding opportunities, each of the funding streams in ESSA need to be fully funded by Congress. That has not yet happened. The Title IV block grant to support well-rounded education and STEM learning was authorized by Congress at more than \$1.6 billion, while Title II grants for teacher and leader professional learning was authorized at \$2.3 billion, but Congress would need to act to provide funding for these programs, and neither was included in the President's recent budget recommendation

Robust federal investment in support of these programs is essential. Advocating for state ESSA plans that include programs that support students' success in STEM will help build demand from the states to ensure these titles are fully funded by the federal government. Those organizations

that advocate directly with members of Congress may choose to specifically call on Congress to commit the resources needed to ensure ESSA can be implemented successfully.

II. Addressing Issues of Equity through STEM

Background

One of the most critical issues in promoting access to great STEM Teachers is ensuring that they are in schools and classrooms where they are most needed. Unfortunately, [we know](#) that far too often the students who lack access to basic and advanced STEM courses are our Latino and African American students and students living in poverty. We also know that science [achievement gaps](#) begin as early as kindergarten and, if unaddressed, can persist through eighth grade. A 2013 [report](#) found that by the time a student from a low-income family reaches 6th grade, he or she will typically have had 6,000 fewer hours of out-of-school or summer enrichment activities than a more economically advantaged peer. It is important to recognize that, fundamentally, a lack of access to these opportunities owes to the lack of great STEM teachers in these students' communities and schools.

Between the 2011-12 and 2012-13 school years, 22 percent of teachers in high-poverty schools either moved to another school or left the profession, a rate that is roughly 70 percent higher than in low-poverty schools. In addition to higher turnover, one study found that four times as many mathematics and science teachers transfer from high-poverty schools to low-poverty schools than transfer from low-poverty schools to high-poverty schools. The distribution of in-field, effective, and experienced teachers is often [highly varied](#) across school districts, with poor students, students with disabilities, and English learners having less access to such educators.

Funding considerations are important to address issues of equity by driving greater resources in areas of need. However, stakeholders may also utilize provisions within the law to specifically address inequitable access to STEM teachers. For instance, the law requires that states and districts describe how low-income and minority children enrolled in high-poverty schools will not be served at disproportionate rates by ineffective, out-of-field, or inexperienced teachers. States are required to describe the measures they will use to evaluate and publicly report on progress to ensure an equitable distribution of teacher quality. Furthermore, the law requires that states submit plans to address how they will provide equitable access to a well-rounded education for all students. While states and districts are aware of these requirements, it is important to highlight the stubborn nature of equity challenges in STEM and how the hiring, training, and placement of STEM educators is oftentimes a big part of the solution in addressing those challenges.

Recommendations

- **States should ensure that all students have equitable access to STEM Courses** by requiring data to be collected under the law that the state can use to determine where gaps exist in access to or participation in STEM. The state can then deploy resources to districts and schools where students are underserved or where participation in advanced STEM Courses among certain student subgroups – including women, minorities, and low-income students – is particularly low.

- **Promote strategies to recruit, place, and retain STEM teachers in schools and districts where students disproportionately lack access to such teachers**, including through: monetary incentives to enter and remain in the profession; access to pathways to advance in the profession through leadership opportunities; and access to high-quality professional development and mentorship delivered by effective STEM teachers.
- **States and districts should prioritize distributing STEM funding to students and schools that need them most**, including by targeting the establishment or expansion of STEM programming and activities to students who are underrepresented in STEM and schools identified for support and improvement under a state’s ESSA accountability plan.

III. Including STEM As a School Improvement Strategy

Background

As states begin to implement the law, the most significant area of focus and attention for many policymakers will be the implementation of accountability to support students and schools in need of the most help. Outside of mathematics assessments, STEM is largely absent from the requirements in the law that touch upon accountability, but stakeholders can push states to consider other STEM indicators, such as student performance on science assessments, as critical to the assessment of school quality.

For example, the law maintains a requirement from No Child Left Behind that all states must develop or establish standards and assessments in science. All public-school students must take aligned assessments at least once in once in elementary, middle, and high school. However, the law does little to describe how states should utilize the results from the assessments.

Additionally, states must establish goals to ensure that all students graduate from high school college- and career-ready. The law only requires the establishment of these goals for reading and mathematics, but states have the discretion to establish such goals in other subjects or areas. Schools that are in most need of help will receive assistance according to the state’s plan for support and improvement. These plans will measure whether schools need help by looking at a variety of academic factors, including student performance in reading and mathematics, English language proficiency among English learners, and graduation rates. Additionally, states must incorporate another state-determined school quality indicator. Stakeholders should encourage states to include STEM – such as science assessment results, access to STEM subjects like computer science and engineering, and the availability of and performance in advanced STEM coursework – in the school quality or student success indicator, such as, consistent with the law.

Including science, computer science, and engineering as a part of the school improvement conversation, along with math and language arts, increase the likelihood that districts and schools will pay attention to its practices for recruitment, training, and supporting great STEM teachers.

Recommendations

- **States should establish goals for all students to graduate high school with the science, technology, engineering, and mathematics knowledge and skills necessary to for success in college and the workforce**, and states should establish timelines associated with meeting such goals for all students, and subgroups of students (including among racial and ethnic minorities, English learners, students with disabilities, and low-income students).
- **States should use access to and performance in STEM coursework as a way to measure school quality**, either by including students' performance on assessments in STEM subjects (science, alongside mathematics) as an academic indicator to measure school quality, or by using students' access to and performance in a diversity of STEM coursework (computer science and engineering) or in rigorous/advanced STEM coursework (such as AP or IB courses) as a measure of school quality.

IV. Windows of Opportunity

States must submit their accountability plans to ED by either April 3rd (May 3rd if the state's governor needs additional time to review the plan) or September 18th. State Education Agencies are taking the lead role in crafting these plans, and governors will sign off on submitting the plan to the Department.

The law requires that states create a plan for engaging with community members who have a stake or interest in the implementation of the state's accountability system. Many states have undergone this stakeholder engagement process already, particularly those that submitted their plans for the early window. Check with [Success with STEM](#) for updates on state plan submission. The majority of states are still crafting their plans for the September deadline, leaving significant opportunity for stakeholders to continue to shape state-level priorities.

No matter where a state is in the submission process, there is still a great deal of decision-making left at the state and district levels with how best to approach the broader implementation of ESSA. Given this, it is worthwhile to engage with state level leaders, even if the state has submitted its plan for consideration to the Department of Education.

If members have been unable to engage with states before the submission of their plans, there are additional opportunities to make an impact on funding and programmatic decisions. Once states' plans are approved, districts will be required to submit their own plans to states for how they plan to use funds under ESSA and their approach for school improvement in their local communities. These plans will be developed throughout the 2017-2018 school year, and members are encouraged to engage with their superintendents and school board members early-on in that process so that issues related to STEM generally, and STEM educators in particular, are a part of the local decision-making conversation early on, using the toolkit developed through the Every Student Succeeds with STEM effort.