Diversifying the STEM Pipeline

Why is equity in STEM education so important?

Equity in STEM education is the key to a strong economy. In all STEM fields, breakthroughs in innovation occur when people with a diversity of cultural, ethnic, and racial backgrounds and life experiences work together to address society's challenges. To maintain a strong STEM workforce that can solve the complex problems of our world, all of our students must have an outstanding STEM education.

Today, far too few students who are female, African American, Hispanic, American Indian, or Alaska Native or who have disabilities pursue STEM career paths. The root causes include insufficient access to high-quality STEM learning, lack of culturally relevant role models in STEM fields, gender and racial stereotypes about who can succeed in STEM, and persistent negative attitudes in the workplace that keep individuals from entering or remaining in STEM career pathways.

This has to change. All students deserve an excellent STEM education. If the United States is to be a global leader in innovation, we need to close STEM learning opportunity gaps.

EDC specializes in expanding access to world-class preK–Gray STEM education for all groups underrepresented in STEM careers. Equity has been a driving force for EDC since its founding in 1958. From our 25 years of heading up the groundbreaking Women's Equity Educational Act Resource Center to our 15 years managing the National Science Foundation (NSF)-funded *STEM Learning and Research Center (STELAR)*, we have broadened participation in high-quality STEM learning and careers for millions.

But our work is far from done. In partnership with community, school, district, state, federal, foundation, corporation, and STEM industry leaders, we seek to give all learners the
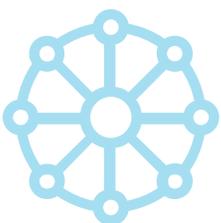
rigorous, relevant STEM learning they need to secure productive and rewarding careers. Our goal is to prepare all students to be part of a robust economy and make significant contributions to improving people's lives worldwide.

Selected Work

To diversify the STEM pipeline, EDC provides systems change consultation, research, evaluation, instructional design, professional learning, and youth and workforce development services. As the leader of national STEM education centers, we support the field in bridging STEM education research and practice to improve outcomes for students.

STELAR. For 15 years, EDC has advanced the goals of NSF-funded *Innovative Technology Experiences for Students and Teachers (ITEST)* projects to improve preK–12 STEM learning in and outside of schools and inspire students to pursue STEM careers—especially students from underrepresented groups. To date, EDC has supported, and shared the findings from, 326 ITEST R&D projects reaching 415,900 youth, 12,800 educators, and 5,100 parents and caregivers in 46 states and the District of Columbia. https://go.edc.org/STELAR

Amgen Biotech Experience (ABE). In 2017, the ABE program engaged 80,000 high school students across the United States, Puerto Rico, the United Kingdom, and Ireland in using research-grade equipment to explore the methods that scientists use to create biotech medicines. This real-world science learning fills a huge gap (few students can access rigorous science learning), builds STEM proficiency, and sparks students' interest in STEM careers. As the *International Program Office for ABE*, EDC

is helping the Amgen Foundation expand and sustain the program to serve more students from low-income communities. https://go.edc.org/ABEProgram

Foundations of Computer Science (CS) K–12. In *Broadening Participation of Elementary School Teachers and Students in CS through STEM Integration and Statewide Collaboration*, EDC and the Mass. Department of Elementary and Secondary Education are developing modules that integrate computational thinking into disciplinary learning in grades 1–6 in 15 school districts. In the *Exploring Computer Science Partnership*, EDC, UMass Boston, UMass Amherst, Framingham State University, and the Massachusetts Technology Leadership Council have increased access to the Exploring CS (ECS) course for students in over 100 schools and trained teachers to engage students from diverse backgrounds in CS learning. EDC and the University of Oregon have developed and piloted four online modules to support new teachers from 23 states in using ECS. https://go.edc.org/CSEd

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