**Supporting our Future: Advancing Equity in Science and Technology through Educator Professional Development**

**Introduction and Problem Statement**

The United States needs to build a diverse and skilled future STEM workforce to remain globally competitive. Our students need to prepare for careers of the future where the paradigm shift enabled automation and data is not fully understood today. STEM education in K-12 classrooms is where future scientists and engineers are forged. And because Scientists and Engineers play a prominent role in shaping the future, diversifying the STEM workforce, by addressing issues that have historically led to underrepresentation in STEM of groups (ethnic and racial minorities and women), is pivotal.

**Our Approach**

A robust technologically literate society is a prerequisite for the United States to meet its needs for future scientists and engineers. The most effective and impactful way is to prepare teachers, who are consequential in shaping students’ STEM identities. Specific, sustained, engaging, and culturally relevant educator professional development – that balances both rigor and cultural responsiveness, has been shown to have a powerful role in promoting success in educational environments—particularly for students from historically underrepresented groups. Tools for educators to increase academic rigor in the classroom and the training to guide students as they consider STEM careers because often, they are the first ones to help students think about themselves as science learners and perceive themselves as someone who knows about, uses, and contributes to science.

For the past eight years, the LBJ Institute for STEM Education and Research at Texas State University has engaged in scholarship and research initiatives to promote educator professional development and STEM engagement for K-12 students in geographically and demographically diverse communities. All activities are guided by educational learning objectives and unique curricula that integrates culturally relevant STEM content. A primary goal of the LBJ Institute work has been to increase the participation and retention of historically underserved and underrepresented populations in STEM disciplines. By pursuing federal funding to promote STEM education (NASA, NSF), and by partnering with local, regional, and national organizations, schools, and other minority serving institutions, the LBJ Institute has implemented successful educator professional development programs broadly. By working with the majority Latinx communities in the surrounding cities around Texas State University, with exciting STEM learning experiences, the LBJ Institute has proven that innovative programs for educators through enacted research-based best instructional practices and unique curricula can reach target audiences. The LBJ Institute also leverages electronic resource capabilities (webinars and digital micro-credentialing courses) to deliver professional development to communities of educators around the United States. In the long-run, training educators to reach students with authentic STEM experiences will generate a more robust STEM workforce needed for the United States to sustain global competitiveness and prosperity.

**Our Impact**

Our success is measured by the number of educators we have reached – an average of 80,000 educators annually. Our efforts to reach teachers who serve students underrepresented in STEM, and the direct impact these teachers have on students (approximately 100 fold) demonstrates the far-reaching impact of our work in advancing equity and access in STEM education.