WINSTON SALEM STATE UNIVERSITY

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Abstract

Next Generation Black STEM Teacher (NGBST-Network) Network is a multi-institutional consortium to increase the number of highly trained and certified Black STEM teachers for both rural and urban school districts. The goal of the program is to provide a co-curricular model framed by a Community of Practice (CoP) model to create teachers at Historically Black Colleges and Universities who (1) create inclusive, and asset/strengths based instructional environments, (2) use an integrated universal design for learning (UDL) approach to their STEM instruction, and (c) design and deliver engaging instruction geared toward promoting critical thinking and problem solving in STEM. Our outcomes include (1) increase the number of well-prepared Black Male Teachers, (2) increasing the number of teachers with certification in STEM teacher shortage area in Georgia, North Carolina, South Carolina, and Virginia, and (3) increasing post-secondary access to Educator Preparation Programs to undergrad students at Historically Black Colleges and Universities (HBCUs). This project will support five (5) cohorts of 10 pre-service STEM Education and/or teachers with STEM education training for Teacher Shortage Areas of STEM to complete co-curricular activities in UDL and asset-based design.

The NGBST Network will provide a model that leverages a multi-institutional approach to Educator Community of Practice (CoP) building. Despite the lack of a central database to provide insight into the preparation and induction practices that work for STEM educators, the literature regarding STEM Educator preparation supports four primary facets. STEM Educators need engagement in hands-on authentic STEM learning activities which include lab-based and classroom-based undergraduate research opportunities (NRC, 2000; 2010). They need high quality collaborating and mentor teachers (Wilson, 2011) in pre-service and development phases. They need integrated professional development (Nadelson, Seifert, Moll, & Coats, 2012), and they need support in teacher identify development, specifically STEM teacher identity development which blends STEM identity development (Perez, Cromley, & Kaplan, 2014) and teacher identity development (Friesen & Besley, 2013; Olsen, 2008). The NGBST Network will prepare pre-service STEM teachers through each of these pillars and within the construct of a Community of Practice across four states in a regional geographic area (eastern/southeastern United States).

Prior research and programming of STEM Educators development has yet to emerge with multi-institutional data sets from Historically Black Colleges and Universities, despite HBCUs producing nearly 35% of all Black teachers in America, and 33% of all Black scientists (Fletcher & Fletcher, 2020; UNCF, 2020, 2021). Thus, it is both compelling and innovative that a model grounded in evidenced-based research (Community of Practice efficacy) be designed by and implemented by HBCUs to increase the number of Black Male STEM teachers, certified STEM teachers to serve shortage areas, and increase access for undergrads to the teaching profession.

UNIVERSITY MARYLAND OF EASTERN SHORE

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ABSTRACT

The **Center for Inclusive Excellence** (CIE) aims to build capacities for preparing and sustaining a diverse teaching force for inclusive excellence. The career-wide pathways to professions are designed to increase access, improve effectiveness, and accelerate career advancement for teachers of color, including black male teachers; while at the same time bridging opportunity and achievement gaps for P-12 student success in high-need urban and rural schools.

The CIE will impact a total of 60 aspiring teachers of color and 1200 P-12 students in four local educational agencies in Designated Qualified Opportunity Zones in urban and rural Maryland.

1. **Connected Ecosystems for Capacity and Linkage Building (Goal 1).** Breaking through traditional uni-sector approaches to solving complex and community-wide challenges of gaps in academic achievements and career outcomes, the CIE will connect educational and employment ecosystems to provide full-spectrum services, from pre-professional preparation to career advancement.

   - *Inclusive Services for Career-Wide Success (Goal 1A)*. Comprehensive *Inclusive Services* will provide wrap-around student success strategies with personalized support in the areas of educational, social-emotional, financial, and career advancement.
   - *Networked Improvement Communities for Sustained Engagement (Goal 1B)*. Sustained community-wide networking among aspiring teachers, educators, and industry leaders of color will be provided to encourage completion and promote retention and advancement.

2. **Connected Learning for Competency Mastery and Professional Advancement (Goal 2).** Breaking through traditional academic preparation to field-based competency credentialing, the CIE will co-implement two sets of high-tech, high-touch, and high-impact interventions to enhance teaching effectiveness and improve student achievement.

   - *Micro-Credentials in Teaching Effectiveness (Goal 2A)*. Participants will engage in comprehensive theory-to-action activities, including guided practices for content and pedagogical mastery, regular and sustained coaching, and evidence-based *Micro-Credentials*.
   - *Micro-Residencies for Inclusive Excellence (Goal 2B)*. Participants will engage in a 100-day internship, which will include multiple micro-immersion experiences through rural-urban rotations, focused on culturally responsive practices.

The rigorous research-based design, competency-based assessment, and evidence-based evaluation will include quantitative and qualitative evidence documenting program efficacy and impact. The model design and key interventions are informed by current knowledge and extensive research conducted through two active Teacher Quality Partnership grants (Huang, 2016 & 2019). The CIE team will share processes and strategies, particularly among HBCUs and high-need school communities. The expected findings demonstrating CIE's systemic approaches and positive impact will help establish a national model in sustaining a highly effective and culturally responsive teaching workforce for our shared future.

Project Partners: Key partners include Coppin State University, University of Maryland Eastern Shore, Baltimore Teachers Union, Baltimore City Public Schools, Dorchester County Public Schools, Howard County Public School System, Somerset County Public Schools, and Rockman et al. as external evaluator.