

Restoring Economic Hope through the Creation of Sustainable Communities: A Replicable Model for Health and Education Empowerment

Twenty-five percent of the sixty-seven counties in Alabama are located in the U.S. Southern Black Belt (BB). Most of the BB lies in the capital heartland economic zone of Alabama [1], with the majority of economic development taking place in Montgomery, East. Once considered the South's most vital agricultural region, the BB has suffered from steady socioeconomic decline resulting from natural causes and poor farming practices, leaving behind swathes of poor farmland occupied by descendants of slaves who once farmed the land. The poverty rate in the BB is 152% higher than the Alabama average and 192% higher than the U.S. average [2]. Currently, the Alabama BB consists of communities that often have lower literacy levels and poorer health outcomes compared to the rest of the country. Research has established cogent links between health and education, highlighting the importance of health to educational outcomes and the importance of educational attainment to health [3-8]. Despite these strong connections, health and education sectors have historically remained siloed, establishing their influence independent of one another. Yet, they are often serving the same individual, in the same location, often attending separately to similar issues. The Center for Disease Control and Prevention (CDC) and Association for Supervision and Curriculum Development (ASCD) created a framework for a unified conceptual model to support a collaborative approach to health, learning, and the community, the *Whole School, Whole Child, Whole Community (WSCC) Model* [9]. This model combines expanded components of the CDC's Coordinated School Health framework with the ASCD's Whole Child framework to create a new model focused on coordination of policy, process and practice that prioritizes improving student health and learning.

UAB is uniquely positioned to support a community-based, collaborative, integrated, and systematic approach to develop sustainable communities in the BB region promotive of health, learning, and economic development. This mission requires a range of expertise and experience, which UAB, a powerhouse for academic, clinical and research innovation, provides. UAB Schools of Education, Health Professions, Medicine, Dentistry, Optometry, Engineering, Business, and the College of Arts and Sciences all have BB initiatives resting on UAB's four fundamental pillars – Education; Research, Innovation and Economic Development; Community Engagement; and Patient Care. To date, none of these initiatives have been combined or coordinated to optimize community development and sustainability.

The overarching goal of this Grand Challenge project is to develop a “virtuous circle” for sustainable communities, platformed on a WSCC architecture. The projected outcome is economic stability in communities marked by high poverty, low literacy, and poor health. Three communities in the BB will be used as the testbed for this project to: (i) promote economic consumption/growth by enabling educated or trained residents to seek job opportunities outside and within the BB and (ii) encourage businesses to move to the BB, luring them via lower costs and a pool of sufficient workforces and customers. The key to bootstrapping a virtuous circle is two-fold: (i) Community Empowerment through localization of education, healthcare, and society focal thrusts (FT), housed within multifunctional community facilities custom-designed to the central living of each BB community, and (ii) Universality through the establishment of community networks to develop replicable and scalable models for other communities suffering from issues of low student achievement, poverty, unemployment and diseases. The convergent effort of the 8 UAB schools will focus on three interconnected FT: Education, Health, and Society, all within a sustainable community context.

FT 1, Education Development: UAB brings the expertise of faculty and staff in multiple disciplines and units including the School of Education (SOE), UABTeach, GEARUP Alabama, the CORD Center, AMSTI/ASIM, the Greater Birmingham Mathematics Partnership (GBMP), and STEM faculty. Working with BB school districts, we will create a pre-K to high school pipeline of students who are college- and career-ready, including STEM+H (Science, Technology, Engineering, Math and Health) fields. All experiences will be developed around the WSCC framework provided within a local setting. UAB STEM educators from UABTeach, GBMP, AMSTI/ASIM, and the SOE will provide professional learning to BB STEM teachers. UABTeach will provide a pipeline of new STEM teachers to BB schools, and students graduating from GEARUP Alabama cohort will enter UAB as a new talent pool with the ability and commitment to return to the BB as STEM teachers. UAB STEM+H departments will develop partnerships with high schools and 2-year colleges in the BB for recruitment into STEM+H majors, leading to graduates committed to returning to the BB. Through CORD, GEARUP and UABTeach, BB students will be provided summer enrichment programs, STEM job shadowing experiences, and peer mentoring to build relationships between UAB STEM students and students in the BB. SOE faculty will also provide professional learning in counseling/mental health services to strengthen the emotional climate in collaborating schools.

FT 2, Health Development: Using the *School Health Index (SHI)* [10], we, in conjunction with local stakeholders, will determine the extent to which the WSCC model has been implemented in 3 BB school districts in order to: 1) identify strengths and weaknesses of health and safety policies and programs with the school districts, 2) aid in the development of an action plan for improving student health within these districts, and 3) serve as a platform for the BB community to promote health-enhancing behaviors in their communities. The SHI is based on the CDC's research-based guidelines for school health programs, which identify the policies and practices most likely to be effective in reducing youth health risk behaviors. We will develop custom health monitoring processes for periodic screenings in the community and we will guide community members to healthcare facilities as needed. In conjunction with all major stakeholders, we will use the SHI data to guide us through custom action plans with a simple process for prioritizing recommendations within the 10 school health components described by the WSCC.

FT 3, Society Development: Multi-functional facilities will be identified by community residents from existing structures to provide a common meeting space for vocational training, computer literacy training, financial literacy, healthcare, dietary/nutritional classes, K-12 enrichment, professional development, and recreation. A needs assessment will be conducted to assure alignment with community goals. Time spent in the facility will be statistically monitored through a badging system to encourage community participation with possible seed grants for further community development as an incentive. We plan to use big data analytics and assimilated statistics to monitor the BB communities, customizing our dynamic model to each community. Leaders of each multifunctional facility will work with: (1) UAB I-Corps and Birmingham's Innovation Depot to encourage start-up companies to grow their businesses in the BB by providing press and initial funding to attract new customers and talent, and (2) Alabama Departments of Commerce and Economic and Community Affairs to advertise to existing business and industries an improved BB community environment and workforce readiness, encouraging companies to expand their businesses in the BB. The PIs and their collaborators span a wide range of areas including healthcare, engineering, science, and business and are able to provide comprehensive mentoring and support to bring businesses, and hence economic development, to the BB.

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Potential Partners: UAB Schools of Education, Health Professions, Medicine, Dentistry, Optometry, Engineering, Business, the College of Arts and Sciences, UABTeach, GEARUP Alabama, the CORD Center, AMSTI/ASIM, the Greater Birmingham Mathematics Partnership (GBMP), STEM faculty, City of Birmingham, the Birmingham Business Alliance, the Workforce Development Council of Alabama, the Black Belt Community Foundation, the Demopolis City School District, the Demopolis Community, Industries, Coastal Alabama Community College, the Alabama Math, Science, and Technology Initiative, Alabama Science in Motion, The University of West Alabama, and the University of Alabama at Birmingham, UAB I-Corps, Innovation Depot.

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