Howard University Teacher Residency Program

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I. Absolute Priority

Residency Program. In response to the Notice Inviting Applications for the Teacher Quality Partnership (TQP), Howard University, in partnership with the District of Columbia Public Schools (DCPS) and the National Center for Teacher Residencies proposes to establish the Howard University Teacher Residency Program. In this proposal, we describe our approach to meeting the Absolute Priority of establishing effective teaching residency programs and Competitive Priority to improve educational outcomes in computer science. Specifically, we plan to offer a 3-semester teacher residency program (Fall, Spring, Summer) that leads to a Master of Education (M.Ed.) degree in elementary, secondary, or special education for teachers in DCPS. The M.Ed. degrees require 36-39 credits depending on the certification area and will also include non-credit professional development modules. These non-credit course modules will support traditional coursework by offering additional support to integrate computational thinking across the curriculum, manage teacher and student stress and wellness, and work with specialized staff to support students who may be experiencing mental wellness challenges.

Resident Stipends. Each year, we plan to recruit 10 teacher residents. Admitted residents will be paid a stipend of $21,720 from the grant and offered a 15% tuition discount from Howard University. We are also seeking additional benefactors to further reduce the cost of attendance. Residents must agree to serve as a full-time teacher in a high-needs school in a high-needs LEA for not less than 3-years immediately after program completion or repay the stipend. We will work with our Office of General Counsel to draft an agreement that meets legal sufficiency standards and TQP requirements.

Mentors. All residents will be assigned an experienced mentor teacher. DCPS school partners will co-select, prepare, evaluate, support, and retain high-quality clinical educators using criteria noted in the Internship Handbook. All mentors will have appropriate academic preparation, requisite certification or licensure, a minimum of three years of experience in their respective fields, and at least one year in the present assignment. Mentors must be recommended by the host principal based on excellent performance and strengths in areas such as classroom management. Graduate level training is preferred, but not required. To retain high-quality mentors, the Howard University School of Education will offer a mentor orientation, seminars, and professional development on campus and at various partner sites. These orientations will be conducted by staff in the Office of Teacher Education as a regular part of their duties. Mentors will be compensated using grant funds and additional partners will be pursued to support long-term retention of our mentor teachers. Mentors will also be recognized at the end of the school year with a certificate of appreciation, a thank you letter, and an evening banquet with candidates and their families.

Clinical Experiences. Howard University has an established handbook that details the clinical experiences and associated roles for faculty, students, and professional partners. For example, during the traditional internship, the observation tools are pre-specified, the number of hours (450) are designated, and the responsibilities for each week are predetermined. During the planning year, we plan to develop a handbook that is unique to the residency program. This newly-created handbook will specify how the coursework, classroom, practice and teacher mentoring are related. The residency program, given that it is a year-long placement, offers opportunities to customize the clinical experiences. During the planning year, we will work with our partner, National Center for Teacher Residencies, to revise our traditional requirements to

meet their residency year experience standards (see National Center for Teacher Residencies, 2019 for a full listing of the standards).

Induction. We propose to develop an induction model that will based on affinity group approach. Affinity groups, or informal and formal groups that form based on common interests, are becoming increasingly popular in education. Affinity groups have been critical to the success of private sector firms by offering benefits to its group members and to the larger organizations in which they are affiliated. Benefits often include increased productivity, validation of employees, retention, recruitment of diverse employees, and more (Diversity Best Practices, 2010). Affinity groups are becoming increasingly popular in education.

Members of the research team are members of a highly-success affinity group known as the Building our Network of Diversity (B.O.N.D.) project with one of our school district partners, Montgomery County Public Schools (see BOND Project, 2019). The BOND Project has three goals: recruitment, development, and retention. Programming is developed around these three goals and costs to offer programming is often minimized because various principals throughout the school district host BOND project meetings at their schools, usually on Saturdays. Auditoriums are usually used for plenary speakers and classrooms are used for breakout sessions and professional development. As shown in the budget narrative, faculty are allotted at least 10% FTEs to allow for participation in induction activities and clinical experiences.

The benefits of an affinity-group approach are that topics will primarily be teacher-initiated. We will create an affinity group, similar to the BOND project, that allows teachers to initiate topics. However, we will work to create sessions and identify professionals to offer support and training primarily using resources from the What Works Clearinghouse (WWC). If

there are no WWC programs for key topics such stress management, we will rely on the expertise of the team and our networks to offer support and development. In addition, affinity groups often develop within affinity groups. For example, there may be an affinity that focuses on gifted education of black students in mathematics. For improvement purposes, satisfaction surveys will be assessed after each meeting. Also, attendance will be used to assess associations between affinity-group participation, retention, and teacher efficacy.

II. Competitive Preference Priority

In 2016, DC Mayor Muriel Bowser established an Innovation and Technology Inclusion Council to aid in developing and supporting a technology and innovation ecosystem that creates equitable opportunities for residents. The Mayor's goals are to create new technology jobs, support start up technology businesses, and to establish an inclusive culture in the local technology ecosystem. As a result of the establishment of the Council, The Pathways to Inclusion Report (Government of the District of Columbia, 2017) was developed from this citywide commitment. The report provides a current view of the cities technology relative to current activities as well as a roadmap to a vibrant innovative economy and the creation of an inclusive ecosystem. The Pathways to Inclusion Report identified a few issues that are directly related to education:

- "Participants overwhelmingly agreed on the importance of early education and exposure" (p. 19).
- "Principals who are dedicated to improving STEM education often have limited resources in terms of computer science teachers…" (p. 19).
- "The high degree of school principals autonomy in curriculum development and after school programming also makes it difficult to offer students a consistent experience…This alone is not an adverse factor…[but] can be problematic if a school's leadership does not prioritize STEM exposure and education" (p. 19).

The Pathways to Inclusion Report also identified five barriers to technology inclusion in education: “Professional development for STEM teachers is inadequate”, “STEM classroom curriculum is inconsistent and disconnected from students”, “Out of school time is a missed opportunity”, “Schools have limited and dated hardware”, and “Students do not see relatable examples of technologists” (p. 21).

We plan to build on our prior experience working with DCPS to implement computer science. We specifically plan to develop a distributed module (over the course of a year) that is based on our prior summer intensive workshop and quarterly professional development. We chose to distribute the content because teachers will be taking courses over the summer that will require intense study over short periods of time. Our goals are to

1. Increase computational thinking offerings in PK-12 schools in the District of Columbia.

2. Build computational thinking skills of teachers and school leaders in the District of Columbia.

3. Increase understanding of the relationships between computer science/computational thinking offerings and student outcomes.

4. Increase understanding of the relationships between literacy and computer science/computational thinking outcomes.

5. Provide support that leads to computer science and computational thinking integration into the preK-8 curriculum in the District of Columbia.

Teachers will be taught how to pursue computational thinking in one of the three pathways outlined in the K-12 Computer Science Framework (2016). The pathways are Broad & Deep Exposure, Moderate Exposure, and Basic Exposure. Teachers will also receive professional development regarding the Computational Thinking Leadership Toolkit (CSTA/ISTE, 2011) to assist them with developing a CS/CT vision and improving technology infrastructure to support

their visions. Doing so will allow provide the flexibility that teachers and partner schools may need, while also meeting the Competitive Priority of the TQP.

III. Partners

Howard University - Partner Institution of Higher Education

The Howard University School of Education (School of Education) is accredited by the Council for the Accreditation of Educator Preparation and is ranked in the top 100 Best Education Schools by the 2019 U.S. News and World Report. We prepare dynamic teachers, educational leaders and human service professionals committed to improve teaching, learning and research in urban and other diverse settings. The School of Education is comprised of three departments: Curriculum and Instruction, Educational Leadership & Policy Studies, and Human Development and Psychoeducational Studies. The School of Education maintains several affiliated programs such as the Urban Superintendents Academy, Early Learning Program, DC Area Writing Project, and Trio Programs.

Track Record on State Licensure Examinations

The School of Education has a strong track record of meeting state requirements, which include passing state Praxis examinations in pedagogy and the content areas (see Table 1). Our 10-year average pass rate on all examinations is 90%. Only once in the past 10 years has our pass rates fallen below 80% (70% in 2017-2018). Although not yet officially reported, in 2018-2019, 24/26 (92%) of the students enrolled in one of our capstone internship courses (known as student teaching) met all test score requirements before the graduation clearance cutoff and will be recommended for licensure. Our passage rates also helped to gain reaffirmation of accreditation by CAEP with no cited areas for improvement in November 2017.

Table 1. School of Education's Ten-year Praxis Test Score Trend

Program Completers	Number taking one or more required tests	Number passing all tests	Pass rate (%)	Statewide average pass rate (%)
2017-2018	23	16	70%	76%
2016-2017	13	11	85%	79%
2015-2016	29	27	93%	85%
2014-2015	34	31	91%	89%
2013-2014	39	33	85%	89%
2012-2013	30	29	97%	90%
2011-2012	52	48	92%	91%
2010-2011	28	27	96%	93%
2009-2010	30	28	93%	91%
2008-2009	26	25	96%	89%
Overall	304	275	90%	78.3%

Teacher Preparation Program Rankings

Based on an externally conducted report, commissioned by the District of Columbia's Office of the State[1] Superintendent of Education in 2016, Howard University had 84 teachers employed in the District of Columbia. When analyzing teachers with 0-2 years of experience, Howard University was the only DCPS provider whereby 100% of its new teachers were rated Effective (see Figure 1). Overall, our graduates are in high demand. Each year, our Annual City-wide Educator's Job Fair, reaches sold-out capacity, attracting local and national vendors. Our consistent feedback is that recruiters appreciate the opportunity to recruit from a pool of teachers from various programs, but specifically want more Howard University graduates.

Figure 1. Table from the Office of the State Superintendent's Report on Recruiting and Retaining Effective Teachers

Prep Program*	Total Novice Teachers	% Person of Color	% Male	% High Needs Subjects	% High Poverty Schools	% Effective	% Plan to stay 2+ Years in LEA
The New Teacher Project	90	33%	24%	47%	91%	70%	63%
Urban Teacher Center	41	48%	15%	44%	81%	61%	66%
Teach For America (D.C.)	34	75%	35%	24%	97%	56%	44%
American University	31	36%	16%	42%	60%	68%	65%
George Washington University	15	36%	20%	53%	43%	90%	80%
Center For Inspired Teaching	12	50%	8%	0%	90%	44%	83%
Howard University	10	100%	20%	30%	67%	100%	70%
KIPP DC	9	22%	11%	0%	100%	80%	56%
UDC	9	88%	44%	11%	88%	75%	67%
Teach Now	8	50%	75%	88%	78%	50%	63%
Trinity University	8	63%	38%	38%	80%	25%	63%
Traditional Prep Programs**	**169**	**46%**	**21%**	**35%**	**72%**	**69%**	**85%**
Alternative Certification Programs**	**205**	**47%**	**25%**	**40%**	**90%**	**64%**	**79%**

** 380 novice teachers, about 50% of our sample, had no prep program data. The sample of teachers with prep program data represented the total sample of teachers across a significant number of dimensions, including placement, effectiveness, and demographics.*

[1] Although the District of Columbia is not a state, the term state is often used in the titles of education agencies within the District of Columbia.

Additional Howard University Requirements

All graduate students must pass Praxis Core examinations in reading, writing, and mathematics as a condition of admission. Graduate students in secondary education must pass the content area Praxis examinations for their respective teaching field as a condition of admission. Meeting state licensure requirements is a graduation requirement for students at the undergraduate and graduate levels in the School of Education. Students in elementary and special education must pass the content-area Praxis examinations before being cleared for graduation. All students must pass their respective pedagogy examinations to be cleared for graduation and recommended for licensure. All passing scores are set by the Office of the State Superintendent for the District of Columbia. In unique cases (three failed attempts) students may be cleared for graduation without meeting state requirements, but will not be recommended for licensure.

District of Columbia Public Schools - High-need Local Education Agency

In 2018-2019, DCPS enrolled slightly more than 48,000 students across 116 schools. Approximately 77% of students in the DCPS are considered economically disadvantaged. Economically disadvantaged as, defined by the Office of the State Superintendent of Education, is anyone who possesses one of the following characteristics at any point in the school year: received free or reduced-price lunch (FRL), received FRL through the U.S. Department of Agriculture's community eligibility provision, attending a school where the entire student population receives FRL, eligible to receive Temporary Assistance for Needy Families benefits or Supplemental Nutrition Assistance Program benefits, identified as homeless, or under the care of the District of Columbia's Child and Family Services Agency (District of Columbia Public Schools, 2019).

Component A – Poverty

In addition to data reported by DCPS, we also match externally-reported data with the eligibility components of the TQP. Using information from the Small, Rural School Achievement Program (REAP), an existing federal program, the master eligibility spreadsheet from REAP shows that 28.43% of children in DCPS are below the poverty level (REAP, 2019). In addition, U.S. Census data show that between 1999-2017, approximately 24-30% of DCPS children, aged 5-17, were from families who met federal poverty guidelines (see Figure 2).

Figure 2 Small Area Income and Poverty Estimates for District of Columbia Public Schools

Component B – Teacher Need

As detailed in the needs assessment (see Appendix C), the State Board of Education commissioned a study to better understand teacher attrition and turnover in the District of Columbia (Levy, September 2018). The report indicated that teacher turnover is higher than comparable cities and higher than the national average. Findings of the study showed that approximately 55% of teachers leave DCPS within a five-year period, compared to approximately 45% of teachers in 16 urban districts. The report also showed that one-year, three-year, and five-year turnover rates are approximately, 18%, 39%, and 54%, respectively.

High-need School Partners

As shown in the DCPS commitment letter (see Appendix I), we have identified five potential school partners. These schools were selected because they have strong instructional leaders and a great pool of teachers who can serve as mentors. We believe that these schools provide the requisite support and enough challenge to cultivate aspiring residents into the profession. A summary of the high-need school partners is listed in Table 2.

Table 2. Characteristics of Prospective Partner Schools

School	Grade Bands (K-5, 6-8, 9-12, etc.)	Total Enrollment	Percent Economically Disadvantaged
Turner Elementary	PK3-5	497	100%
Garfield Elementary	PK3-5	291	100%
Sousa Middle	6-8	242	100%
Anacostia High	9-12	296	100%
Beers Elementary	PK3-5	489	100%

National Center for Teacher Residencies

The National Center for Teacher Residencies (NCTR), launched in 2007, partners with school districts, charter management organizations, institutions of higher education, not-for-profits, and states to develop teacher residency programs as quality pipelines of effective and diverse new teachers. NCTR will offer strategic consulting regarding development, support, and scaling of a highly-effective, performance-based residency programs by offering innovative technical assistance, including building a sustainable financial model, to Howard University.

CNA (Evaluator)

The Institute for Public Research at CNA will conduct the external evaluation of this proposed project. CNA, a mid-sized research firm, located in Arlington, VA, has conducted a host of educational evaluations and was a 10-year contract holder for the Regional Educational Laboratory Appalachia, one of 10 federal education labs funded by the U.S. Department of Education. CNA, originally known as the Center for Naval Analysis, has operated the Center for Naval Analysis, via Department of Defense contracts, for more the 70 years.

IV. Application and General Program Requirements

(a) A needs assessment of the partners in the eligible partnership with respect to the preparation, ongoing training, professional development, and retention of general education and special education teachers, principals, and, as applicable, early childhood educators.

The 2017-2022 Strategic Plan (District of Columbia Public Schools) highlights strategic priorities to a) promote equity, b) empower our people, c) ensure excellent schools, d) educate the whole child, and e) engage families. Within the empower our people priority, one of the aims is to improve teacher pipelines, especially for male teachers of color. In addition, the needs

assessment (see Appendix C), shows that approximately 55% of teachers leave DCPS within five years, making most teaching positions a high need.

To inform the development of the residency and induction programs, we conducted a multi-component needs assessment. The needs assessment (see Appendix C) was conducted based on two key documents, the 2018 Howard University Administrative and Program Prioritization Initiative (PPI) and the 2018 District of Columbia's State Board Teacher and Principal Turnover Report. In sum, the needs assessment describes four goals that were set by the Howard University School of Education (HU-SOE) based on the PPI and are relevant to the TQP: (i) strengthen academic programs, (ii) enhance research and sponsored programs and revenue generation, (iii) enhance alumni and community outreach, and (iv) enhance HU-SOE's national profile. The Teacher and Principal Turnover Report made two recommendations that are aligned with the TQP: (i) improve teacher retention and (ii) collect richer data on teachers to better understand turnover and improve retention.

In addition to the needs assessment provided in Appendix C, the Howard University team met with the newly appointed (March 2019) DCPS Chancellor, Lewis Ferebee, who offered support for this proposed project and emphasized a huge need to recruit more males from racial minority groups. In addition, we worked with Deputy Chancellor Melissa Kim, to identify high-needs school partners within DCPS.

Lastly, the Howard University team offered a support workshop for alumni and their invited teacher colleagues in May 2019. Approximately 40 teachers attended and approximately 25% were HU-SOE alumni. Teachers were given opportunities to share their concerns, network with teachers from other schools, and offer informal support to each other. To complement our

needs assessment, we conducted informal focus groups during the closing lunch session. The major themes and supporting examples from these informal focus groups are described below.

Support to address teacher and student mental health and stress to minimize burnout:

- Improve teacher skills in self-advocacy and establishing boundaries
- Support with "onlyness" and the "racial-minority tax": Navigating an environment where the students are almost 100% black and brown and the teacher is the only adult teacher/person of color.
- Improve knowledge of school districts' benefits packages and what they mean for retirement and comprehensive health care.
- Improved knowledge and skill development with trauma-informed teaching.

Professional practice:

- Enhanced knowledge of performance evaluation and the objective qualities that make a novice teacher "effective."
- More information about what teachers must do in their first year of teaching.
- More knowledge about restorative justice and its application to classroom discipline and management.
- A better balance between teacher's content knowledge, teaching life skills to students, and teaching students about the expectations of the community outside of school.
- More focus on special education teaching methods and techniques.

Family and Community Engagement

- Improved teacher awareness of parents' needs and parents can serve the needs of their children.

Mentorship and Supporting Underrepresented Minorities

- Matching novice teachers with quality mentor teachers of color – especially those who have experience working effectively with black and brown children.

Based on our needs assessment, we devised several project goals, objectives, activities, and outcomes, which also include TQP goals. These goals, objectives, activities, and outcomes are described in Table 3.

Table 3. Alignment of Project Goals with the Teacher Quality Partnership Purposes

Teacher Quality Partnership Purposes	Project Goals	Activities	Outcomes
• Improve student achievement	• Increase state-test scores • Increase computational thinking skills of students • Increase teacher retention	• Provide coursework and professional development that leads to improved student outcomes and a more stable teacher workforce	• One and three-year teacher retention rates • Student growth on test scores and teacher IMPACT scores (DCPS value-added teacher measure) • Scores on the computational thinking survey
• Improve the preparation of prospective teachers and enhancing professional development activities for new teachers	• Offer an innovative residency program that leads to a master's degree	• Refine existing professional development modules and develop four new modules to the existing master's coursework: (1) computational thinking across the curriculum, (2) teacher health and wellness, (3) student wellness and engaging students with disabilities, (4) peer coaching • Provide high-quality mentoring and collaboration opportunities • Collect richer data on teachers to better understand turnover and improve retention	• Grades • Assessment scores from modules • Pre-service teaching evaluation scores • Persistence - Percentage of completers and non-completers per year • Observation data from peer coaching sessions • Teacher efficacy scores • Teacher focus group data summarizing residency experiences
• Hold the Howard University School of Education preparation program accountable for preparing teachers who meet applicable state certification and licensure requirements	• Achieve 90% pass rate of enrolled residents • Establish a sustainable financial model for the proposed residency program to offset student costs and allow focused engagement on coursework and professional skills • Achieve 80% persistence of enrolled residents	• Refine coursework to ensure close alignment with state examinations • Conduct continuous formative and summative assessments • Work with NCTR to implement residency model standards • Employ external evaluator to assess progress towards project goals • Develop early August orientation and to allow residents to start in placements before the first day of DCPS school.	• Percentage of program graduates and STEM graduates who have obtained initial licensure within one year • Licensure test pass rates over time • Changes in match allocations relative to initial grant period • Orientation meeting agenda and first-day of school reflections
• Recruit highly qualified individuals (including minorities and individuals from other occupations, into the teaching force)	• Achieve parity with male and female residents (50%) • Attract racial minority candidates from a range of disciplines and occupations	• Develop recruitment plan to attract high-quality male and female candidates, with a key focus on minority males	• Demographics of teachers by race, gender, major, GPAs, entry test scores, and occupation

(b) A description of the extent to which the program to be carried out with grant funds, as described in the Absolute Priority, in this notice, will prepare prospective and new teachers with strong teaching skills

We plan to ensure that teacher residents who participate in the teaching residency program will receive effective and rigorous pre-service preparation by employing an interdisciplinary approach that combines expertise from faculty in Curriculum and Instruction, School Psychology, and Computer Science. Secondary and special education candidates will complete a 36-credit hour program and elementary candidates will complete a 39-credit program. The elementary program requires three additional credits due to the range of content preparation needed for elementary teachers. Candidates are also required to complete non-credit professional development modules. These modules are often offered online and include: Foundations of Education and Urban Schooling, Professionalism, Instructional and Assistive Technology, Writing Workshop, Engaging Families, Communities, and School Personnel, Teachers of English to Students of Other Languages (TESOL), and Teacher-made Classroom Assessments.

A summary of admissions and matriculation requirements that will be used for the residency program are provided in Tables 4 and 5.

Table 4. Admission Criteria for Residency Program

Admission Criteria	
Undergraduate GPA	2.7 or higher (Our admissions average is usually above 3.0, but we set 2.7 as a minimum to allow some flexibility of strong candidates who may have GPAs under 3.0).
Bachelor's Degree	✓
*Praxis Core Academic Skills for Educators - Reading	Passing Scores set by Office of State Superintendent
*Praxis Core Academic Skills for Educators - Writing	Passing Scores set by Office of State Superintendent
* Praxis Core Academic Skills for Educators - Mathematics	Passing Scores set by Office of State Superintendent
**Praxis II – Content Examination (for secondary education candidates only)	Passing Scores set by Office of State Superintendent
Goals Statement & Application	✓
Biographical Sketch	✓
Three letters of recommendation	✓

Table 5. Existing Course and Non-Credit Module Requirements

Common Courses		
Diversity in American Education Content Area Reading and Writing I Behavior and Classroom Management Educational Psychology: Learning and Development Research Methods in Curriculum and Teaching Survey of Exceptional Populations Internship		
Elementary	**Secondary**	**Special Education**
Integrated Methods I: Language Arts, Social Studies, & Technology	EDUC 672 Assessment and Measurement in Schools	Diagnostic and Remedial Techniques in Reading
Integrated Methods II: Mathematics, Science, & Technology	EDUC 690 Methods for Teaching	Diagnosis and Evaluation of Exceptional Populations
Survey of Exceptional Populations	Content Area Reading and Writing I	Teaching Exceptional Children
Literature for Children and Adolescents		
Diagnostic and Remedial Techniques in Reading		
Existing non-credit professional development modules: Foundations of Education and Urban Schooling, Professionalism, Instructional and Assistive Technology, Writing Workshop, Engaging Families, Communities, and School Personnel, Teachers of English to Students of Other Languages (TESOL), and Teacher-made Classroom Assessments		

Module refinement and development

Based on our needs assessment and desire to integrate computational thinking across the curriculum, we are proposing to refine existing modules and develop four new face-to-face modules (shown in Table 5 above) during the planning year. These modules include: (A) Computational Thinking Across the Curriculum, (B) Teacher and Student Health and Wellness, (C) Engaging Students with Disabilities, and (D) Peer Coaching.

Dr. Burge, Professor in Computer Science (see Biographies in at the end of the document) and Dr. Anderson (Associate Professor in Curriculum and Instruction) will lead the development of the Computational Thinking Across the Curriculum Modules. Drs. Burge and Anderson recently completed a five-year NSF-funded project, Partnership for Early Engagement in Computer Science (PEECS), in partnership with DCPS and Google. PEECS team members developed capacity of local teachers to teach introductory computer science and computational thinking concepts as well as work directly with K-12 students to improve computational literacy. Results of the project included the successful addition two computer science courses to the District of Columbia's Public Schools (DCPS) Course Catalog. Courses are Computer Science Concepts and Explore Computer Science (see Figure 3 for course descriptions).

Figure 3. Screenshot of DCPS course catalog showing computer science courses that were created based on partnership between Howard University and DCPS

Course: V38	Computer Science Concepts
School Level: High School	This course is designed to introduce students to computer science in a condensed introductory course. The course does not focus on learning a particular software tool or programming language, but rather focuses on the conceptual ideas of computing so students understand why certain tools or languages might be utilized to solve particular problems. Students will be introduced to topics such as interface design, robotics, computers' strengths and limitations, as well as societal and ethical issues.
Graduation Requirement:	
Credit: 0.5	
CLCP: No	

Course: V39	Explore Computer Science
School Level: High School	This is the introductory course to the Computer Science pathway, designed to introduce students to the breadth of computer science. The course does not focus on learning a particular software tool or programming language, but rather focuses on the conceptual ideas of computing so students understand why certain tools or languages might be utilized to solve particular problems. Students will be introduced to topics such as interface design, robotics, computers' strengths and limitations, as well as societal and ethical issues.
Graduation Requirement:	
Credit: 1	
CLCP: Yes	

As of spring 2018, more than 1,850 DCPS students had taken one of the courses and 70 teachers had participated in the summer and quarterly professional development workshops. Critical lessons about computer science integration were learned and described in a recently published paper *Lessons learned from a district-wide implementation of a computer science initiative in the District of Columbia Public Schools* (see Anderson, Burge, Shine, Mejias & Jean-Pierre, 2018). The Computational Thinking Survey is published is this same paper as well. In the Competitive Priority Section, we describe how we will customize the professional development to distribute key concepts across the curriculum.

The Teacher and Student Health and Wellness and Engaging Students with Disabilities modules will be co-taught by Drs. Celeste Malone (Assistant Professor of School Psychology) and James Jackson (Associate Professor of Special Education). Malone et al. (2019) recently completed a study that examined preservice teachers' knowledge of children's mental health

topics, the extent to which these topics were covered in teacher education coursework, and their perceived relevance to teaching. They also explored preservice teachers' attitudes towards providing school mental health services. Sixty-five preservice teachers completed a modified version of the School Mental Health Knowledge Relevance Scale (SMHKRS) and a researcher created a questionnaire with items about their beliefs about the school's role in children's mental health and their familiarity with school-based mental health providers. They found that although most participants reported completing at least one course related to supporting children with emotional and/or behavioral problems or classroom management, SMHKRS scores suggest mental health content receives little coverage in teacher education coursework. Most participants believed that mental health knowledge is relevant to their work as teachers and that schools should address the mental health needs of students.

Smith, Segal, & Segal (2013) indicated that when students experience stress, many learning domains are impacted, and several warning signs may be present (see Table 6).

Table 6. Stress Warning Signs and Symptoms (from Smith, Segal, & Segal, 2013)

Cognitive Symptoms	Emotional Symptoms
• Memory problems • Inability to concentrate • Poor judgment • Seeing only the negative • Anxious or racing thoughts • Constant worrying	• Moodiness • Irritability or short temper • Agitation, inability to relax • Feeling overwhelmed • Sense of loneliness and isolation • Depression or general unhappiness
Physical Symptoms	**Behavioral Symptoms**
• Aches and pains • Diarrhea or constipation • Nausea, dizziness • Chest pain, rapid heartbeat • Loss of sex drive • Frequent colds	• Eating more or less • Sleeping too much or too little • Isolating yourself from others • Procrastinating or neglecting responsibilities • Using alcohol, cigarettes, or drugs to relax • Nervous habits (e.g. nail, biting, pacing)

In a study of 147 students, conducted by Dr. Jackson (2011), 68% of students indicated that they had issues with stress and 82% noted that there was no medical reason for it. When the question, **"**How does the issue of stress impact reading and math performance?" was asked, 58.1% noted that it was difficult to maintain concentration or pay attention, 19.1% reported high levels of hyperactivity, 14.1% indicated misbehaving in the classroom, and 8.7% said they did not understand teacher's directions. He further documented the students' reasons for stress. Anger, death, fear of death, depression, and lack of money, were the top five categories noted. Accordingly, we will use the expertise of Drs. Jackson and Malone to lead the Teacher and Student Health and Wellness and the Engaging Students with Disabilities modules.

The final module, Peer Coaching, will be led by Dr. Anderson. Britton and Anderson (2010) co-authored a paper in *Teaching and Teacher Education* that documented the usefulness of peer coaching in preservice teacher education. Peer coaching, largely an off-shoot of

Goldhammer's (1969) seminal work on clinical supervision focuses on several key elements: building trusting relationships, minimizing professional advice [initially] in favor of forcing the teacher reflect on the data collected during the teaching session, promoting self-regulation, and developing mutually supportive professional relationships that support growth and reciprocal learning.

One of the key elements of peer coaching is conferencing. Given human resource constraints, time, efficiency models of teacher supervision, and logistical constraints, pre-conferences (the teacher/observer conference before the teaching lesson) are not often used in schools. The pre-conference can be a very useful session because it can re-direct potentially ineffective teaching sessions before they occur. Pre- and reflection conferences, as well as data collection on teacher behaviors and student outcomes during the teaching sessions are critical components of peer coaching. Peer coaching is designed to be developmental and not evaluative and can be effective in improving teacher practices if done well. These peer coaching sessions will supplement the teacher evaluation training for which DCPS teachers undergo.

We plan to implement the peer coaching models in pairs of residents and with mentors within and between partner schools. Thus, residents will have the opportunity to be exposed to a variety of teaching demonstrations across and within their schools and disciplines. These peer coaching sessions support the TQPs aims to place students in cohorts that facilitate professional collaboration. In general, peer coaching can be unsuccessful without proper training, therefore, residents will receive essential peer coaching training during in Peer Coaching module. Mentors will receive peer coaching training during the summer.

The Engaging Families, Communities, and School Personnel module will be updated to include video-based simulations of parent-teacher conferences. An award-winning article,

Because Wisdom Can't Be Told: Using Comparison of Simulated Parent–Teacher Conferences to Assess Teacher Candidates' Readiness for Family–School Partnership, published by Wisdom & Dotger (2012) described how pre-service candidates became more efficacious in the abilities to communicate with families after evaluating researched-based, scripted videos. These videos provide examples of family conferences that address two issues: behavior and academic performance. These education simulations, modeled after standardized patients in medical education, include valid and reliable assessments that will be used during the residency program. The Engaging Families, Communities, and School Personnel is taught by rotating faculty in the Department of Curriculum and Instruction.

During the planning year, we will couple our current improvements with the strategic consultation of NCTR to develop a well-designed, clinically-oriented residency model that is based on their standards. NCTR standards are centered around four competency areas (i) partnership and program sustainability (ii) recruitment and selection, (iii) residency year experience, and (iv) graduate impact (see NCTR, 2018, for a full listing of the standards).

(c) A description of how such program will prepare prospective and new teachers to understand and use research and data to modify and improve classroom instruction

Understanding and using research and data to modify and improve classroom instruction are strengths of our existing programs. All candidates are required to complete a course entitled, Research Methods in Curriculum and Teaching. Within this course, candidates are required to complete an action research project, that identifies a classroom-based instructional issue, conduct a literature review that addresses approaches for mitigating the issue, develop and implement a research-based solution, and collect data on the results. Figure 3 provides a screenshot of the rubric that candidates complete to demonstrate impact on student outcomes. The action research

project has generated useful outcomes and we will continue to require this course in the residency program.

Figure 4. Screenshot of Action Research Rubric

Student Outcomes Impact
Semester_____ Year_____ Degree_____ Major_____ Specialty_____

Dependent Variable:_____ **Independent Variable:**_____

Mean (Group 1)		Mean (Group 2)		Effect Size (Cohen's d)
Standard Deviation		Standard Deviation		

Component of Talent Development Philosophy Addressed
(Researched-based Scheme for Promoting Enhanced Teaching and Learning; Boykin & Noguera, 2011)

Check one or more.

Engagement

_____ Cognitive – connotes investment aimed at comprehending complex concepts and issues and acquiring difficult skills; conveys deep processing of information to gain higher-order understanding
_____ Affective – connotes emotional reactions linked to task investment (e.g. positive attitude, curiosity, positive value)
_____ Behavioral – conveys the presence of on-task behavior (e.g. pro-social behavior, follows in-class or procedural directions, etc)
_____ Vocational – makes occupational connections (supplement to Boykin & Noguera, 2011)

Guiding Functions – one's adaptive learning postures that can shape steer, shape, govern, and intensify fundamental engagement processes (e.g. self-efficacy, self-regulated learning, incremental ability beliefs, etc.)

_____ Guiding Functions

Asset-focused Factors – contextual conditions in which teaching, learning, engagement, and guiding functions manifest (e.g., personal, social, experiential, cultural, intellectual, etc.)

_____ Interpersonal Relationships – focuses on quality of connections and associations in classroom (e.g. teacher-student relationship quality, autonomy motivation, collaboration, teacher expectations, learning goals, etc.)
_____ Intersubjectivity – speaks to how well the values, interests, and learning priorities of the teacher are aligned with those of the students and the extent to which these aligned emphases are reflected in the curriculum
_____ Information-processing Quality – focuses on the use of effective or adaptive mental operations to accomplish academic tasks

Comments:

(d) A description of:

(1) How the eligible partnership will coordinate strategies and activities assisted under the grant with other teacher preparation or professional development programs, including programs funded under the ESEA and IDEA and through the National Science Foundation; and

To support the competitive priority, we will leverage resources for the Computer Science for All Community of Practice, which is managed by the American Institute's for Research and funded by the National Science Foundation (2019). In our Computational Thinking Across the Curriculum module, we will introduce teachers to the online community of practice, emphasizing the online communities for elementary and middle school groups who share resources for integrating computer science across the curriculum in the lower grades. We also plan to submit a proposal to the Robert Noyce Teacher Scholarship Program (Track 1) to provide additional scholarship and stipend support to STEM-based teacher residents.

(2) How the activities of the partnership will be consistent with State, local, and other education reform activities that promote teacher quality and student academic achievement

We also plan to leverage DCPS' Learning together to Advance our Practice (LEAP) professional development. LEAP is a weekly professional development opportunity that requires a 90-minute seminar and one touchpoint from a LEAP coach. During the planning, we will work with DCPS to allow residents to participate in some of the LEAP seminars. The touchpoint from the LEAP coach offers observation and debrief, modeling and debrief, and co-planning.

(e) An assessment that describes the resources available to the eligible partnership, including:

(1) The integration of funds from other related sources

The tables in Appendix I show how funds are integrated from related sources. The tables show that in addition to funds that may be allocated from the TQP grant program, Howard University will contribute cash, a 15% tuition discount, and in-kind personnel contributions. NCTR will contribute in-kind customized consultation that doubles the value of the charged fee during the first year. During subsequent years NCTR will offer addition in-kind customized consultation along with discounted networking fees described in Appendix I. Finally, DCPS will offer in-kind time for coordination and planning efforts.

(2) The intended use of the grant funds

The budget narrative provides a description of the intended use of grant funds. The primary uses of funds are for teacher stipends and associated insurance benefits. We also allocate funds for mentor honoraria, faculty professional development, purchase of peer coaching and simulation materials, induction program start-up costs, and dissemination. We have contracted with two partners, NCTR and CNA, who will offer customized consultation and external evaluation, respectively. The statements of work for NCTR and CNA are provided in Appendix I. Less than two percent of the total budget is allocated for summer faculty salaries.

(3) The commitment of the resources of the partnership to the activities assisted under this program, including financial support, faculty participation, and time commitments, and to the continuation of the activities when the grant ends.

The letters of commitment of resources from the Dean of the School of Education, Dawn Williams, the CEO of NCTR, Anissa Listak, and the Deputy Chancellor of DCPS, Melissa Kim are provided in Appendix I. Faculty participation and time commitments are described, using full-time equivalent (FTEs) calculations. Most of the FTEs are in-kind commitments from faculty. A small stipend will be provided to faculty during the summer for planning and events,

such as orientation. We are very committed to the sustainability of this program and have already engaged potential benefactors and hope to have more external support by the first implementation year. We have also included our strategic partner, NCTR, who will provide some financial modeling support to promote sustainability. As shown on our goals statement (see Table 3 on page 18), changes in match allocations relative to initial grant period is an outcome that we set for this proposed project.

(f) A description of:

(1) How the eligible partnership will meet the purposes of the TQP Grant Program as specified in section 201 of the HEA;

The goals statement in Table 3 on page 13, specifically list the purposes of the TQP program and describe project goals that we developed based on these purposes. The goals include: Increase state-test scores, Increase computational thinking skills of students, Increase teacher retention, Offer an innovative residency program that leads to a master's degree, Achieve 90% pass rate of enrolled residents, Establish a sustainable financial model for the proposed residency program to offset student costs and allow focused engagement on coursework and professional skills, Achieve 80% persistence of enrolled residents, Achieve parity with male and female residents (50%), and Attract racial minority candidates from a range of disciplines and occupations. Alongside these goals, we developed specific activities that would lead to measurable outcomes.

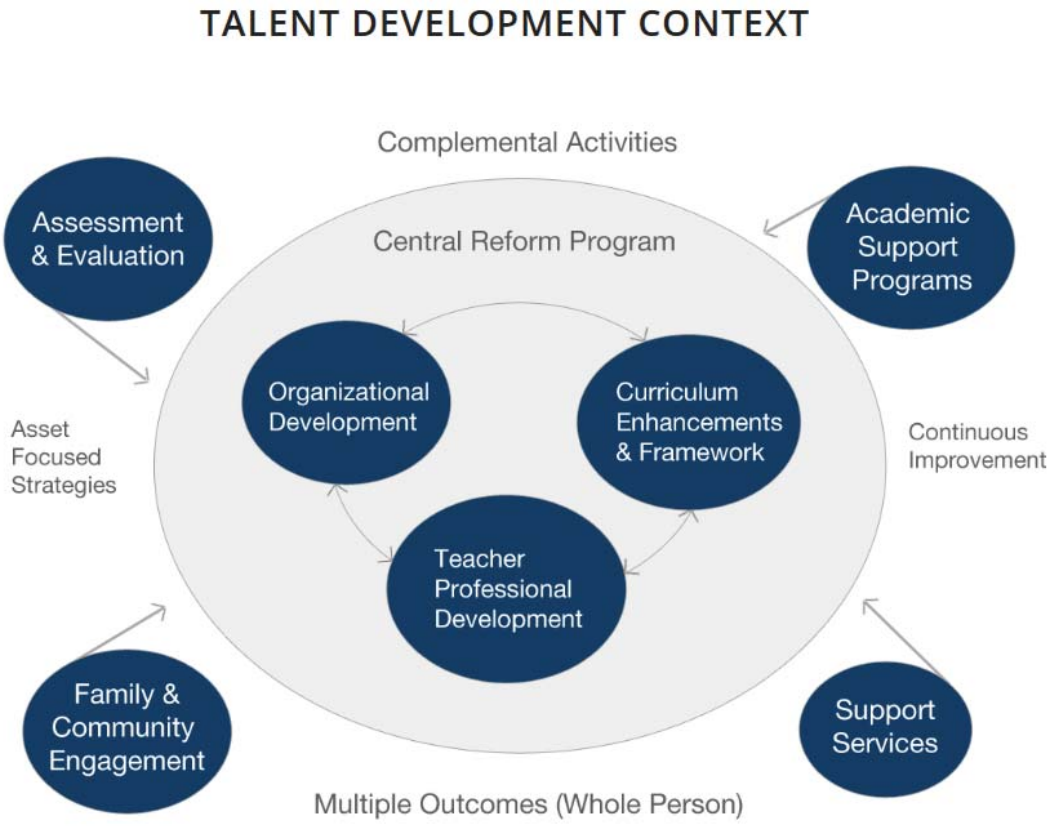
V. Quality of the Project Design

Our rationale for the proposed project is based on the needs assessment described in Appendix C. We used the needs assessment to develop a table that shows how the TQP purposes are met by establishing (a) goals and (b) activities to achieve the goals. We also selected measurable outcomes that are directly aligned to the Government and Results Act of 1993. Given that we need to build capacity to offer the Howard University Teacher Residency Program, we assembled a team of partners that bring several different strengths. Howard University offers a strong history of traditional teacher preparation, computer science education, and education of Black and underrepresented minority students. The National Center for Teaching Residencies is a national leader on teacher residencies and offers 12 years of capacity-building experience to the team. DCPS brings a wealth of teachers with a variety of experience to serve as mentors and offers support with requesting and receiving data to assess the quality of the project. Lastly, our evaluator, CNA has a storied history of evaluating complex organizations and programs and can provide an unbiased perspective about program quality.

As shown in our Logic Model (see Appendix G), our approach was informed by the Capstone Institute's (Howard University) model for capacity building (see Figure 5). When developing talent, Boykin advocates for a central reform program that is augmented by complemental activities. In particular, we plan to meet statutory purposes and requirements of the TQP through our central reform program and associated complemental activities. The Department of Curriculum has worked closely with Dr. Boykin's team to build our internal capacity to offer teacher education programs that build on assets, a key of component of the Talent Development Context. Dr. Anderson is very familiar with the model and has in-press publication in the *Journal of Teacher Education* that uses components of the Talent

Development Context as framework to analyze national trends and highlight issues with teacher education and underrepresented minorities (see Anderson, In press).

Figure 5. Rationale for Program Design



IV. Adequacy of Resources

Howard University, established in 1867, is a federally chartered, private, doctoral university, classified as a higher research activity institution. With an enrollment of more than 10,000 students, its undergraduate, graduate, professional, and joint degree programs span more than 120 areas of study within 13 schools and colleges. Howard University has an Office of Research, led by the Vice President for Research, who reports directly to the Provost and Chief Academic Officer. The Office of Research and Sponsored Programs is an office within the Office of Research that helps to facilitate pre-award activity for all externally-funded grants. Upon receipt of an award, the Grants and Contracts Accounting office is responsible for award set-up, activation, and reviewing terms, conditions, and responsibilities of the grant with the Principal Investigator. Each School and College is assigned a grants accountant whereby all transactions flow, upon receiving proper approvals at the School or College levels. The University has site licenses to statistical software such as MATLAB, SPSS, and Mathematica. The R software, which is freely available will be used for this project.

Within the School of Education, the Associate Dean of Research and Sponsored Programs, reports directly to the Dean, and is responsible for supporting School of Education faculty with pre- and post-award activity. The School of Education is equipped with three multi-purposes spaces to host symposia and other research events. The Administrative Assistant also supports faculty with securing additional on-campus office space or convenings of 50 or more attendees. These convenings are often held in the Howard University Interdisciplinary Research Building or the Blackburn Student Center. The Department of Computer Science also has ample meeting space to host workshops and operates with a similar organizational structure to the School of Education.

As described in the budget narrative, we believe that our four investigators have committed enough time to achieve the project goals. We have existing infrastructure in the School of Education, such as the Office of Teacher Education and an assistant dean who coordinates enrollment management issues. We also believe that the commitment and support letters as well as the statements of work included in Appendix I provide in-depth descriptions of the contributions of all partners.

VI. Quality of the Management Plan

In this section, we describe our management plan to achieve the objectives of the proposed project on time and within budget. We designate responsibilities, timelines, and milestones for accomplishing project tasks. Since the planning year will be somewhat iterative, we will operate from the principal of mutualism (Coburn, Penuel, & Geil, 2013), or sustaining interactions to ensure that project activities are serving the needs of all stakeholders. Table 7 provides a summary of goals and timelines for accomplishing these goals. During stakeholder events, such as induction activities or summer training, each event includes a goals table, deliverables schedule, materials list, and a stakeholder feedback survey.

Table 7. Project Goals and Associated Timelines

Project Goals	Activities	Outcomes	Timeline (Responsible Partner)
• Increase state-test scores • Increase computational thinking skills of students • Increase teacher retention	• Provide coursework and professional development that leads to improved student outcomes and a more stable teacher workforce • Collect richer data on teachers to better understand turnover and improve retention	• One and three-year teacher retention rates • Student growth on test scores and IMPACT scores (DCPS value-added teacher measure) • Scores on the computational thinking survey	• Annual (DCPS provides data each October on retention and IMPACT scores) HU Team analyzes data in Fall, CNA audits technical analysis • Beginning and End of Term (HU Team Collects and Analyzes Data, CNA provides technical review)
• Offer an innovative residency program that leads to a master's degree	• Refine existing professional development modules and develop four new modules to the existing master's coursework: (1) computational thinking across the curriculum, (2) teacher health and wellness, (3) student wellness and engaging students with disabilities, (4) peer coaching • Provide high-quality mentoring and collaboration opportunities	• Grades • Assessment scores from modules • Pre-service teaching evaluation scores • Persistence - Percentage of completers and non-completers per year • Observation data from peer coaching sessions • Teacher efficacy scores • Qualitative Data	• Each Semester (HU Team collects and analyzes data in Fall, CNA provides technical review) • Annually (NCTR collects data and shares feedback • Annually (CNA conducts focus groups and submits report to HU Team review)
• Achieve 90% pass rate of enrolled residents • Establish a sustainable financial model for the proposed residency program to offset student costs and allow focused engagement on coursework and professional skills • Achieve 80% persistence of enrolled residents	• Refine coursework to ensure close alignment with state examinations • Conduct continuous formative and summative assessments • Work with NCTR to implement residency model standards • Employ external evaluator to assess progress towards project goals • Develop early August orientation and to allow residents to start in placements before the first day of DCPS school.	• Percentage of program graduates and STEM graduates who have obtained initial licensure within one year • Licensure test pass rates over time • Changes in match allocations relative to initial grant period • Orientation meeting agenda and first-day of school reflections	• Annual (HU Team collects and analyzes data in Fall, CNA provides technical review)
• Achieve parity with male and female residents (50%) • Attract racial minority candidates from a range of disciplines and occupations	• Develop recruitment plan to attract high-quality male and female candidates, with a key focus on minority males	• Demographics of teachers by race, gender, major, GPAs, entry test scores, and occupation	• Each Semester (HU Team collects and analyzes data in Fall, CNA audits technical analysis)

The full team of all stakeholders will meet monthly to discuss the short-term goals and overall progress toward the goals. At each meeting, we will discuss four essential questions: (1) Which goals were met in the current month? (2) Which goals do we plan to meet in the following month? (3) Which goals should be modified? and (4) How can we improve? Answers to the four questions will be recorded monthly and summarized in the annual report. CNA will audit our meeting minutes, mid-term, and annual reports to summarize our progress towards project goals. This summary will be used to inform our strategy in year two. Tables through provide samples of the some of the workflow documents.

Table 8. Sample Goals Table

Goals	Workshop	Measures
Conduct first induction workshop	August	Stakeholder Survey

Table 9. Table 4. Sample Materials List for Stress Management Workshop #1

Materials	Material type	File name
Participant agenda	Participant Agenda	Stress Management Workshop 1 - Participant Agenda.docx
Main Slides	Presentation	Stress Management Project Workshop 1 - Slide Deck
Stakeholder Feedback Surveys (SFS)	Surveys	Stress Management Workshop 1 - SFS#1 Template.docx
Handout	Handout 1	Stress Management Workshop 1 - Handout 1 – Stress Management.docx

Table 10. Sample Stakeholder Feedback Survey

Workshop 1: Stress Management	SD	D	A	SA	NA
1. The goals for the workshop/training were clearly stated at or before the beginning of the event.	1	2	3	4	NA
2. The structure of the workshop/training was appropriate for meeting the stated goals.	1	2	3	4	NA
3. The presenter(s) explained the research evidence clearly.	1	2	3	4	NA
4. The presenter(s) clearly connected research evidence to practical implementation.	1	2	3	4	NA

VII. Quality of the Project Evaluation

We have devised a matrix (see Table 3, p. 18) that outlines project goals, activities, and outcomes that are directly aligned to the TQP purposes. We have also included program measures that meet GPRA (1993) requirements as well as program measures that will inform the develop of the Howard University Teacher Residency Program. These measures include a range of proximal (near term outcomes), enabling (intermediate outcomes that promote long-term outcomes), and distal outcomes (longer term outcomes) Karcher et al.'s (2006) that are essential to assessing program outcomes.

To assess these measures, we will operate from two key principles for talent development. Specifically, we will emphasize continuous improvement and let evidence inform and guide interventions. We have assembled partners that will provide instructive formative and summative feedback. NCTR will assess the efficacy of residents using their proprietary efficacy and readiness (for offering a residency program) measures. CNA will conduct independent focus groups of programs completers. CNA will use member checks to ensure accurate representation and will also provide technical feedback on internally-generated program and research reports. The Howard University team will lead the internal research efforts and will assess the reliability and validity of administrative data by employing current practices of reliability checks (checking

existing reliability coefficients, assessing missingness, and assessing alpha and kappa coefficients). To enhance validity of results, we will also account for the nested nature of the data by employing sandwich techniques and multi-level models where appropriate as well as making other adjustments for violations of assumptions. Given that some of the measures listed in the outcomes, such as persistence and retention, are binary, we will assess linear probability and logit models to assess tradeoffs between function form and interpretability. Given the collective expertise of our team, we feel confident that our approaches are thorough, feasible, and appropriate to the goals, objectives, and outcomes of the proposed project. We thank you for your consideration of our project. Biographies of the project team are provided below.

VIII. Biographies of Staff

Kenneth A. Anderson – Principal Investigator

Dr. Kenneth A. Anderson, a former middle school teacher, earned a Ph.D. in Curriculum & Instruction, with a minor in Educational Research and Policy Analysis from North Carolina State University in 2005. Anderson is Associate Professor and Associate Dean of Research and Sponsored Programs in the School of Education at Howard University. Anderson's primary research interests include examining education policies and practices that aim to improve school climate and safety, teacher effectiveness, and computational literacy. Working through the United States Department of Education's *Regional Education Laboratory (REL) Appalachia*, Anderson served as Principal Investigator on a longitudinal, statewide disciplinary data analysis project with the Virginia Department of Education to inform strategies for minimizing suspensions and referrals to law enforcement. Anderson's publications have appeared or been accepted in journals such as *Journal of Teacher Education*, *Teachers College Record, Urban Education, Journal of Negro Education, Middle Grades Review, Urban Review*, and *Teaching and Teacher Education*. Anderson has served as Principal Investigator, Co-Principal Investigator, or Senior Personnel on externally-funded projects, exceeding 1.9 million dollars, from organizations such as the National Science Foundation and the American Educational Research Association.

Legand L. Burge III – Co-Principal Investigator

Dr. Legand Burge is Professor and former Chairman of the Department of Computer Science at Howard University. His primary research interest is in distributed computing. Dr. Burge is also interested in Computer Science Education and Diversity, and Tech Entrepreneurship and

Innovation. His work in CS Education and Diversity has primarily been focused on informal and personalized learning, and on the use of technology to aid in socio-technical enculturation of underrepresented students in CS, K-12 initiatives, and diversity, equity, and inclusion beyond compliance. He is Principle investigator for several NSF funded projects such as: the NSF HBCU-UP: Targeted Infusion in Computer Science, and the NSF CE21: Partnership for Early Engagement in Computer Science, and co-Principle investigator on the Howard-Hampton University NSF I-Corp Site. Dr. Burge practices design thinking as an innovative teaching methodology and promotes immersive learning and learning by doing. He co-teaches the Bison Startup course that introduces undergraduate students to the Lean Startup methodology. In addition, he co-teaches the Bison Accelerate course co-developed with YCombinator, in which students are guided through the process of founding technology startups. Dr. Burge has a strong interest in developing university innovation ecosystems for HBCUs as a way to create alternative revenue streams, attract and retain students, and prepare students with 21st century skills. Dr. Burge is a contributing member of the university wide innovation and entrepreneurship initiative called HowU Innovate. He currently directs the HowU Innovate Foundry; which has consistently incubated on average 15 student led tech startups per year. Dr. Burge is a certified Lean Launchpad Educator, and Stanford D-School Design Thinker. He is the co-founder of XediaLabs, a DC-based incubation firm that provides training and technical consulting to local startups. He has been featured in several articles such as Bloomberg Business Week regarding diversity and inclusion in tech, and conducted a TedX talk on HBCUs role in the innovation and entrepreneurship ecosystem for African Americans. Dr. Burge is a Fellow of AAAS, BEYA Innovation Award recipient, and a Fulbright Scholar recipient.

James T. Jackson – Co-Principal Investigator

Dr. Jackson serves as an Associate Professor of Special Education, in the Department of Curriculum and Instruction, at Howard University. He has extensive service in program evaluation that started in 1989 with an invitation to evaluate a high school program for teacher effectiveness. Since coming to Howard, he has been engaged to evaluate programs and projects for the United States Department of Justice, the United States Department of Education, the Office of State Superintendent of Education for Washington, DC, Mt. Pleasant High School in Wilmington, DE, and countless public and charter schools. While much of Dr. Jackson's evaluation experience has focused on teacher quality and development, he has also had opportunities to evaluate programs for the United States Department of Health and Human Services and the Chester Mental Health Center for the North Central Association of Colleges and Schools. Dr. Jackson serves as Consulting Editor for the International Journal of Special Education. His research and publications address the impact of stress on learning and behavior of students with emotional and behavioral disorders. He has served as an external examiner for Addis Ababa University in Ethiopia and a former faculty member at Southern Illinois University – Edwardsville and the George Washington University. He has also worked as a public-school teacher in Prince George's County, Maryland and Memphis, Tennessee. His area of expertise is in preparing teachers to serve students with special needs – especially those with learning and behavioral challenges. He has conducted professional development workshops in a variety of areas for school districts. His research interests include identifying stress and its impact on learning and behavior; classroom ecology and its effect on learning; using the arts as a teaching tool for students; and effective strategies to promote inclusive education. He has served on various committees and boards and is currently active in various mentoring activities.

Melissa Kim (LEA Representative)

Dr. Melissa Kim is the Deputy Chancellor of Social, Emotional, and Academic Development at DC Public Schools. In this role, she leads the district's 116 schools as well as all programs including academics, interventions, innovations, equity initiative, and family engagement to ensure that DCPS provides rich and rigorous experiences for all students. Dr. Kim has been an educator in DC for more than 20 years, and she previously served as Chief Academic Officer for KIPP DC, where she worked closely with secondary schools and special education services to ensure student success. Prior to that, Dr. Kim worked as a partner at New Schools Venture Fund and the principal of Deal Middle School. Dr. Kim grew up in Yardley, Pennsylvania and obtained a bachelor's degree from Colby College, a Master of Arts from Trinity College, and a doctorate of education from the University of Pennsylvania.

Brittany Cunningham (Evaluator)

Dr. Cunningham is a Research Scientist with CNA's Institute of Public Research with more than a decade of experience designing, implementing, and managing rigorous education research studies and program evaluations at the local-, state- and national- levels. Her expertise includes quasi-experimental design, multimodal data collection, quantitative and qualitative data analysis, and report writing. She has substantive experience designing mixed-methods evaluations, survey instruments, conducting in-depth interviews with various populations, and implementing mixed methods data collection protocols for research studies and program evaluations. Dr. Cunningham has served as principal investigator for the evaluation of National Science Foundation's (NSF's) Advanced Technological Education program, NSF Gender STEM program, and study of a High School Algebra 1 blended learning pilot project for the Northeast Tennessee College and Career-Ready Consortium, funded by an U.S. Department of Education

Investing in Innovation (i3) grant. She has served as Principal investigator (PI) on various projects for the Regional Educational Laboratory (REL) Appalachia and REL Midwest funded by the U.S. Department of Education Institute of Education Sciences (IES).Dr. Cunningham led technical assistance support services for the minority-serving institutions project under the U.S. Department of Education Office of Career, Technical, and Adult Education. She has extensive experience working with the National Center for Education Statistics (NCES) longitudinal data files such as the National Assessment of Educational Progress (NAEP) and the Schools and Staffing Survey (SASS). Dr. Cunningham also provides research support to CNA's Safety and Security Divison's Justice program. Currently, Dr. Cunningham serves as the project manager and research scientist for the National Institute of Justice- funded randomized controlled trial (RCT) of the impact of body –worn cameras in the Loudon, County Adult Detention Center; one of the first RCTs of body worn cameras in a correctional setting.

References

American Institutes for Research and National Science Foundation (2019). *CS for All Teachers*. Retrieved from https://csforallteachers.org/.

Anderson, K. A. (In press). A national study of the differential impact of novice teacher certification on teacher traits and race-based mathematics achievement. *Journal of Teacher Education.*

Anderson, K. A., Burge, L., Shine, T., Mejias, M., & Jean-Pierre, K. (2018). Lessons learned from a district-wide implementation of a computer science initiative in the District of Columbia Public Schools. *Journal of Computer Science Integration*, 1 (1). https://doi.org/10.26716/jcsi.2018.01.1.2

BOND Project (2019). *The Building Our Network Project*. Retrieved https://bondeducators.org/

Britton, L. R., & Anderson, K. A. (2010). Peer coaching and pre-service teachers: Examining an underutilised concept. *Teaching & Teacher Education*, 26, 306-314.

Census.gov (2019). *Small Area Income and Poverty Estimates (SAIPE)*. Retrieved from https://www.census.gov/data-tools/demo/saipe/saipe.html?s_appName=saipe&map_yearSelector=2017&map_geoSelector=aa_c&s_state=11&menu=trends&s_measures=sa_sd

Coburn, C.E., Penuel, W.R., and Geil, K.E. (2013). *Research-Practice Partnerships: A Strategy for Leveraging Research for Educational Improvement in School Districts*. William T. Grant Foundation, New York, NY.

Cole-Dixon, A. (2018). *Academic and Administrative Program Prioritization Initiative*. Retrieved from http://www.provost.howard.edu/aapp/Prioritization%20Background%20&%20Overview.pdf

District of Columbia Public Schools, 2019. *DCPS at a glance: Enrollment.* Retrieved from https://dcps.dc.gov/node/966292.

District of Columbia Public Schools (2017). *A capital commitment: Strategic plan 2017-2022*. Retrieved from https://dcps.dc.gov/sites/default/files/dc/sites/dcps/publication/attachments/DCPS%20Strategic%20Plan%20-%20A%20Capital%20Commitment%202017-2022-English_0.pdf

Diversity Best Practices (2010). *Diversity primer*. New York, NY: Diversity Best Practices.

Goldhammer, R. (1969). *Clinical supervision: Special methods for the supervision of teachers*. New York: Holt, Rinehart & Winston.

Jackson, J.T. (2011). Impact of Stress on Literacy Development of Culturally Different Children with Special Needs Living in an Urban Environment. Unpublished.

Karcher, M., Kuperminc, G., Portwood, S., Sipe, C., Taylor, A., Dubois, D., & Rhodes, J. (2006). Mentoring programs: A framework to inform program development, research, and evaluation. *Journal of Community Psychology*, 34(6), 709–725. https://doi.org/10.1002/jcop.20125

Levy, M. (2018). *State Board of Education Teacher and Principal Turnover Report for Public Schools in the District of Columbia*. Retrieved from https://sboe.dc.gov/sites/default/files/dc/sites/sboe/publication/attachments/SBOE%20Teacher%20Turnover%20Report%20-%20FINAL.pdf

Malone, C., et al. (2019). *Assessing Preservice Teachers' Knowledge of Children's Mental Health Concerns*. Under review.

National Center for Teacher Residencies (2018). NCTR standards for effective teacher residencies. Retrieved from https://nctresidencies.org/wp-content/uploads/2018/08/NCTR-Standards-2018.pdf

Office of the State Superintendent (2017). *District of Columbia 2016-2017 Equity Report*. Retrieved from https://osse.dc.gov/sites/default/files/dc/sites/osse/publication/attachments/2017_Equity_Report_Citywide_District%20of%20Columbia.pdf

Office of the State Superintendent and The New Teacher Project (2016). *Recruiting and Retaining Effective Teachers*. Unpublished document.

REAP (2019). Small, Rural School Achievement Program Eligibility Spreadsheet. Retrieved from https://www2.ed.gov/programs/reapsrsa/eligibility.html.

Walker, J. M. T. & Dotger, B. H. (2012). "Because Wisdom Can't Be Told: Using Comparison of Simulated Parent–Teacher Conferences to Assess Teacher Candidates' Readiness for Family-School Partnership." *Journal of Teacher Education* 63.1 (2012): 62–75.