

*Chance, CREATE Year 2 resident  
with 7<sup>th</sup> grade student*



*Kiara, CREATE Year 2 resident  
with 3<sup>rd</sup> grade student*



*Latifa and Teri, paired CREATE Year 2 residents  
with their 4<sup>th</sup> grade class*



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CBCT  
Compassion Training

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## PROJECT NARRATIVE

The proposed initiative—**Collaboration and Reflection to Enhance Atlanta Teacher Effectiveness (CREATE)**—enhances work already underway at 12 high-needs schools in Atlanta, GA and scales the project to include 3 new cohorts and new high-needs schools striving to more powerfully impact historically marginalized students and communities. This work addresses Absolute Priority 1 [\[AP1\]](#): Supporting Effective Teachers, subparts A and B, as well as both subcomponents of Competitive Preference Priority 1 (Promoting Diversity in the Educator Workforce [\[CPP1\]](#)) and Competitive Preference Priority 2 (Supporting Personalized Learning [\[CPP2\]](#)). CREATE draws on proven strategies from two studies, Glazerman et al. (2006) and Clark et al. (2013), both of which meet What Works Clearinghouse (WWC) standards without reservations (see Appendix I, study copies); on additional proven practices in the field of teacher effectiveness; and on preliminary results from the first two years of CREATE teacher residency programming, a previously-funded 2015 Department of Education Investing in Innovation (i3) award and a 2017 Georgia Governor’s Office of Student Achievement (GOSA) award.

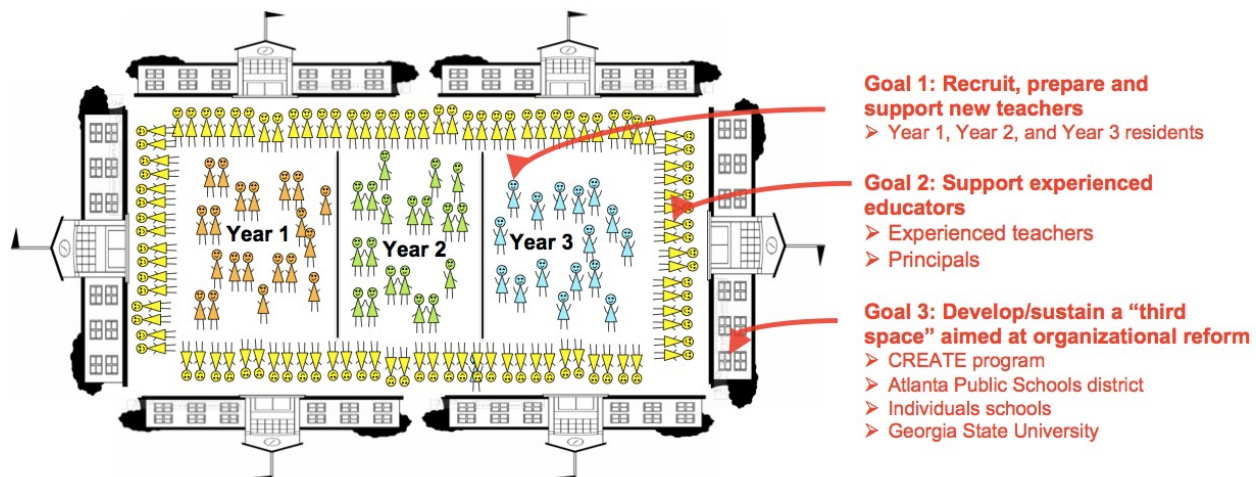
### Section A. Quality of the Project Design

#### *A.1. An Exceptional Approach to the Priority Areas*

CREATE merges an innovative 3-year, new teacher residency model with extensive within-school and cross-school opportunities for teacher and school leader collaboration, reflection, and professional learning. This merger of programming—supporting both new *and* experienced educators in high needs schools—is part of what makes CREATE an exceptional approach to Absolute Priority 1. More specifically, CREATE is designed to meet three overarching goals: (1) to recruit, support, and retain a diverse pool of effective teachers to work in high-needs schools [\[AP1a; AP1b; CPP1; CPP2\]](#); (2) to support effective teaching practices

and the development of social capital (Leana, 2011) among experienced educators working in those same high-needs schools; and (3) to develop a cross-institutional “third space” to promote organizational reform within new teacher induction. Reaching these goals will ensure that the high-needs schools in the CREATE consortium will increase their capacity to recruit, support and retain a diverse, highly effective and culturally competent teacher workforce that is committed to working in high-needs schools and to increasing student achievement. The goals/objectives/outcomes chart in Section C and Figure 1 (below) highlight the three main goals of the CREATE model.

**Figure 1. Diagram of CREATE’s three goals**



GOAL 1: As highlighted in figure 1, the first goal of CREATE is to attend to Absolute Priority 1 [AP1a] by **preparing and supporting diverse teachers for work in high-needs schools through a three-year urban teacher residency program**. The CREATE residency model includes three evidence-based practices developed by Teach for America (TFA) that were found to generate positive impacts on student achievement: 1) the **recruitment** of talented, committed individuals; 2) **pre-service training** that features a school-based, intensive 5-week summer learning experience; and 3) two years of inservice **mentoring** for residents. It is the synergistic impact of all three of these practices in TFA studies that are thought to have a

statistically significant and positive impact on student achievement. [See Logic Model, Appendix G]. We draw on two studies in particular—Glazerman et al. (2006) and Clark et al. (2013)—that outline these practices in sufficient detail, meet WWC standards without reservations, and show positive impact on the math achievement of students in urban schools comparable to CREATE schools (based on race and % of students eligible for free/reduced-price lunch). What makes the CREATE residency model an exceptional approach to AP1, however, are its enhancements of the TFA model—enhancements that (a) increase the quality, intensity and duration of induction programming; (b) are specifically designed to diversify the teacher workforce; (c) support novice *and* experienced teachers in developing cultural competence and pedagogical effectiveness; and (d) increase the social capital (connectedness) of teachers and schools.

Since 1990, TFA has *recruited, trained and placed* several thousand high achieving graduates from elite universities in high-needs schools around the country. The majority of these TFA corps members, however, leave their positions in low income schools during or just after their required two year commitment (Donaldson & Johnson, 2011), a trend that mirrors national patterns of high teacher attrition in urban schools serving low-income students (Simon & Johnson, 2015). Unlike TFA, CREATE recruits [\[AP1a\]](#) teacher-candidates already enrolled in Georgia State University’s College of Education and Human Development (GSU CEHD) who have committed to (and are doing well in) university coursework toward a degree in education. This recruitment practice is aligned with higher retention rates (Donaldson & Johnson, 2011) and better teaching performance (Ingersoll, Merrill, & May, 2014) among novice teachers. In addition, CREATE offers competitive resident stipends and the promise of extensive site-based support over the three-year residency in order to attract high-quality, diverse, committed candidates to the program. CREATE benefits from drawing residents from the larger pool of

candidates enrolled in GSU's CEHD, where student racial demographics in 2016 approached the demographics of local schools: 41% Black, 32% White, 17% Asian, 10% other. Drawing on studies that suggest that teachers of color are more likely to work and remain in high-poverty, hard-to-staff urban schools and districts than their White counterparts (Partee, 2014), CREATE's recruitment of residents from the GSU CEHD's highly diverse teacher candidate pool is an exceptional approach to diversifying the teacher workforce in high-needs schools [CPP1].

Drawing next on TFA's model of *intensive, context-specific, school-based pre-service training* (Glazerman et al., 2006; Clark et al., 2013), recruited CREATE residents enroll in the first year (Y1) of the residency program during their final year of university and school-embedded coursework (designed specifically for CREATE residents) in the GSU CEHD teacher certification program. Program courses focus on culturally responsive pedagogy and issues of race, class, and power in schools [CPP1] and are taught in CREATE schools whenever possible. GSU faculty also attend to personalized, "deeper learning" curricula (Noguera, et al, 2015) and engage Y1 residents in readings on the importance of increasing "student engagement, voice and choice" (SEED NIA, 2017) by highlighting instructional strategies such as project-based learning and the International Baccalaureate curriculum [CPP2]. In addition to coursework, Y1 residents engage in year-long teaching in classrooms of skilled teachers, where they are mentored by experienced university and school-based educators.

Y1 residents also participate with their cohort resident group in monthly meetings to help them make connections between what they are reading (related to issues of race, cultural competencies, and personalized/deeper learning) and what they are seeing and experiencing in their classrooms. Using the tools and structures of the School Reform Initiative Critical

Friendship<sup>1</sup> (SRI-CF)—a collaborative, transformational professional learning community—CREATE leaders use structured protocols to ensure equity of voice and help residents examine problems of practice and uncover assumptions and biases about students and families that they might be bringing to their work as new classroom teachers. Cohort meetings also include a 10-week course in Cognitively-Based Compassion Training<sup>2</sup> (CBCT), a compassion-based mindfulness curriculum developed and taught by practitioners from the Emory-Tibet Partnership (ETP) that supports residents in cultivating stable attention, emotional awareness, and the ability to care for others. Taken together, SRI-CF and CBCT, as offered within the structure of regular Y1 cohort meetings, comprise an exceptional and synergistic approach to preservice training by intentionally building a peer support network; helping residents manage the intensity of life and school stressors during their first year of residency; and addressing residents’ evolving questions, concerns, and biases about teaching in high-needs schools.

Drawing again on the TFA model (Glazerman et al, 2006; Clark et al, 2013), rising year two (Y2) residents participate in *intensive, school-based, summer programming* designed to build on completed GSU coursework and further develop residents’ cultural competencies around race [CPP1]. During this five-week summer training, residents are also taught to design safe, responsive, and personalized classroom spaces [CPP2] and apply elements of *Responsive Classroom*<sup>3</sup>—an evidence-based approach to K-8 teaching that focuses on the strong link between academic success and social-emotional learning—to their own classrooms. Residents focus particularly on *developmental awareness* as they combine knowledge of child development (from university coursework) with observations of students in their summer classrooms to generate a developmentally appropriate learning environment for *each child*. By building on

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<sup>1</sup> <http://www.schoolreforminitiative.org/>

<sup>2</sup> <https://tibet.emory.edu/cognitively-based-compassion-training/>

<sup>3</sup> <https://www.responsiveclassroom.org/>



university coursework and including a dual focus on cultural responsiveness *and* personalized learning, CREATE offers an exceptional approach to pre-service training.

During Year 2 of the residency (see Figure 2 below), CREATE residents' classroom supports shift substantially, as they take up the second of three progressive core classroom roles. Rather than working alongside an experienced teacher as in Y1, *pairs* of Y2 residents now work *together* in a classroom as team-teachers of record. This model affords residents an increased degree of responsibility (as they become teachers of record for the first time) as well as providing consistent peer support (as two residents share one teacher's responsibilities for lesson planning, instruction, parent contacts, etc.). Again drawing on the TFA *mentorship model* (Glazerman et al., 2006 and Clark et al, 2013), CREATE provides residents with intensive mentorship during Y2 as they are coached individually and in pairs (for team-teaching guidance) for 90-120 minutes per week by a professional instructional mentor (IM) trained by Atlanta Public Schools (APS) Department of Professional Learning in partnership with the New Teacher Center (NTC).

**Figure 2. CREATE residency model**

FEATURES	Year 1 <i>pre-service</i>	Year 2 <i>in-service</i>	Year 3 <i>in-service</i>
<b>PROGRESSIVE CORE CLASSROOM ROLES</b> <i>Purpose: to increase responsibilities and independence as teaching abilities improve.</i>	Student Teacher Role (some residents paired)	Team-Teacher Role (paired with other Y2 resident)	Lead Teacher Role
<b>ADDITIONAL SUPPORTS FOR EACH RESIDENT</b> <i>Purpose: to provide additional support mechanisms and incentivize participation.</i>	Support of Cooperating Teacher	Support of team-teacher (other Y2 resident)	Support of School-Based Mentor
	Support of University Supervisor	Support of School-Based Mentor	Support of Instructional Mentor / Program Director
	Support of on-site Program Director	Support of Instructional Mentor / Program Director	Teacher salary plus \$6k stipend
	\$5k Stipend	Paid summer learning \$3.5k	Priority to be offered teaching position in a CREATE school
		Team teacher salary \$41k (approximate)	
<b>LEARNING OPPORTUNITIES FOR ALL EDUCATORS (EXPERIENCED TEACHERS, SCHOOL LEADERS)</b> <i>Purpose: to develop collaboration &amp; reflection in school communities</i>	Critical Friendship Participation	Critical Friendship Participation	Critical Friendship Participation
	Cognitively-Based Compassion Training	Cognitively-Based Compassion Training	Cognitively-Based Compassion Training

During coaching sessions, the IM helps reinforce core instructional and personalized learning practices in residents' classrooms [CPP2]. In an enhancement of the TFA model, each resident is also supported by a CREATE-trained school-based *on-call* teacher mentor who helps them navigate policies, politics, and issues of equity/race in schools [CPP1]. As in year one, Y2 residents come together monthly as a cohort, continuing mindfulness and compassion skill building through CBCT and scaffolded peer support through SRI-CF protocols and practices.

In the third and final year of the residency program (Y3), residents' classroom roles shift again, as they are now eligible to be hired as solo teachers-of-record, independently responsible for a class of students, building on a scaffold of experiences and progressive classroom roles from Y1 and Y2. During Y3, residents receive an additional stipend for remaining in one of the CREATE high-needs schools. In addition, mentorship—from both the school-based on-call mentor and the IM—continues, further increasing the likelihood that CREATE's high-quality, intensive, long-lasting and multi-tiered approach will lead to residents' retention in high-needs schools and to continued improvement in their teaching practice. Y3 residents meet 3 times per year for one full day of cohort learning (including SRI-CF practices and deepened CBCT skill development). They also work with their IMs to plan and enact one of two personalized learning approaches [CPP2]—project-based learning or International Baccalaureate curriculum (depending on the curricular approach in use at their schools)—focused on issues of race, equity and social justice [CPP1].

GOAL 2: As highlighted in figures 1 and 2, a second goal of CREATE is to offer an exceptional approach to Absolute Priority 1b [AP1b] by supporting *current* educators in CREATE schools. Specifically, CREATE offers experienced educators professional development opportunities aimed at increasing their effectiveness, connectedness/social capital,



and retention in high-needs schools. In this way, CREATE supports the development of school-wide and cross-school communities in which teachers and principals engage in **activities designed to increase collaborative and reflective practice and contribute to the development of inclusive and welcoming *whole-school cultures***. To these ends, experienced educators in CREATE schools are invited to participate in SRI-CF and CBCT professional development that is similar to that experienced by residents and then, if interested, to progress further in one or both areas as they serve as CF leaders in their schools, attend national conferences, etc. The mission of SRI—“to create transformational learning communities fiercely committed to educational equity and excellence”—is well-aligned with CREATE’s work of forging partnerships among teachers in high-needs schools and enhancing their cultural competencies [CPP1]. In fact, protocols used in SRI-CF work utilize probing (or powerful and open) questions to help the presenter “think deeply about the issue at hand,” “challenge assumptions,” “encourage perspective taking,” and “create a paradigm shift” for teachers engaging this work. Current teachers in CREATE schools are also encouraged to dig deeply into CBCT, using the practices not only to enhance their own attention, emotional awareness and ability to care for others, but to help cultivate these practices in students. Those selected will have opportunities to earn certification as CBCT instructors.

Experienced teachers in CREATE schools may also apply to take on a paid leadership role by serving as a school-based on-call mentor to a CREATE resident. Mentors participate in 2 days of training to prepare them for this role. Equity-based, cultural competency will be included as a component of this training to prepare mentors to work with new teacher residents in ways that call for reflection on issues of race, power, and privilege in schools [CPP1]. These experiences have a dual purpose—to enhance mentors’ reflection and collaboration around their

own culturally-based classroom practices *and* to support them in their mentoring of CREATE residents in their schools.

Altogether, CREATE works extensively to develop consortium schools—the communities in which the residents work—into communities that practice inclusivity and equity. While supporting residents in taking on highly effective instructional practices, collaboration and critical reflection, CREATE simultaneously develops a similar skill set among the experienced educators that surround them, thereby synergistically increasing the likelihood that new teachers will be in alignment with and feel supported by their school communities; that experienced educators will support new teachers; that experienced educators will engage in increasingly collegial relationships and feel increasingly supported by each other (i.e., the development of social capital/connectedness in schools); and that overall school climate will improve.

GOAL 3: Many have written about the gap between research and practice (Ebby, 2000) and, regrettably, universities and schools/districts are often framed as oppositional to one another (Flessner, 2014). With this in mind, a final goal of CREATE is **to develop a “third space” aimed at organizational reform**—a space designed to engage teacher preparation and induction organizations in collective, sustained reflection in order to re-imagine and reform teacher education. Drawing on third space theory, which calls for the recognition and deconstruction of binaries (like theory vs. practice) and the creation of new spaces for reflection and renewal, CREATE brings together university faculty, district/school leaders, and community members involved in the education of students for sustained and deep (re)consideration of the work each does. In this third space, “the original binary choice is not dismissed entirely but is subjected to a creative process of restructuring that draws selectively and strategically from the two opposing categories to *open new alternatives*” (Soja, 1996, p. 5). It is these new alternatives to teacher

preparation and induction—new terms, new spaces, new systems and structures that come from shared understandings—that we aim to develop in CREATE’s third space. Like Flessner (2011), we argue that the usefulness of third space in teacher education is not just in coming together to engage in critical reflection in/on our work, but to go back to our places of work to *make change*. In this way, the projected outcomes of our “third space” work transcend the granting period.

To ensure that this work is both effective and sustainable, key project partners (GSU university faculty, residency directors, local school teachers and leaders, and district personnel, all described further in A.3 below) will come together in an “induction organizations collaborative” (IOC) for monthly third space meetings with three main (and continually evolving) goals in mind. First, representatives from these organizations will discuss CREATE, including their roles in the IOC work, where they would like to see CREATE go in the future, and how they might adjust their own systems/curricula/procedures to best meet the needs of new and experienced CREATE teachers and school leaders. This shared work is essential to the success and sustainability of CREATE. In addition, the IOC will work across organizations to collectively re-imagine and reform teacher preparation *in general*, as we learn from and with one another through data sharing, cross-space experiences, and deep dives into the curricular and organizational structures of each organization. IOC members will aim to take the new learnings and understandings of each project partner back to their respective workplaces in order to promote *much needed change* in how we support teachers. Finally, the IOC will participate in newly developing efforts to bring CREATE programming out into the communities served by CREATE schools (in the form of film screenings, community workshops, expert lectures on equity and race, etc.) to facilitate school *and community* action around teacher preparation for historically marginalized communities. The IOC will be led by the GSU research and

instructional team, using SRI-CF protocols and practices to ensure equity of voice and a focus on educational equity and excellence. IOC work will be carefully documented for research and dissemination purposes (through qualitative research methods outlined in B.1 and C.1 below).

## A.2. A Closer Look at the Quality, Intensity and Duration of the PD Services of CREATE

A recent review of residency programs found that the quality, intensity, and duration of residencies contribute to greater teacher retention and that students of teachers who participate in a residency program outperform students of non-residency-prepared teachers on state assessments (Guha, Hyler, & Darling-Hammond, 2016). In this section, we summarize key CREATE services that span all years of the program—(1) progressive core classroom roles for residents; (2) cultural competency and personalized learning training for residents; (3) mentoring/mentorship, SRI-CF, and CBCT offered to all CREATE teachers; and (4) IOC third-space events—in order to underscore the quality, intensity, and duration of these services.

**Table 1. Intensity and duration of CREATE services**

Service	Description of intensity and duration
Placement in residency/ progressive core classroom roles across 3 years	<ul style="list-style-type: none"> <li>• In Y1, <b>residents</b> teach alongside an experienced CREATE teacher for year-long practice teaching (<i>20 hrs/wk in fall w/coursework; 40 hrs/wk in spring</i>).</li> <li>• In Y2, <b>residents</b> are paired (2 teachers/1 class) for <i>one year of scaffolded teaching (40 hrs/week)</i></li> <li>• In Y3, <b>residents</b> are <i>sole instructors of record, taking on full responsibility</i> in their classrooms (<i>40 hrs/week</i>).</li> </ul>
Training in cultural competence and personalized learning	<ul style="list-style-type: none"> <li>• In Y1, <b>residents</b> are <i>immersed in readings</i> on personalized, deeper learning and race/class/gender and in activities designed to develop cultural competencies</li> <li>• In Y2 and Y3, <b>residents</b> work with both a school-based “<i>on-call</i>” mentor trained in equity-based practices and an IM trained to support residents in the development of personalized learning (<i>1.5 hrs/week</i>)</li> </ul>
Multi-year instructional mentorship	<ul style="list-style-type: none"> <li>• In Y1, <b>residents</b> work with university supervisors for <i>3 hrs/wk</i> and with their cooperating teachers <i>daily</i>.</li> <li>• In Y2 and Y3, <b>residents</b> are supported <i>1.5 hours per week</i> by IMs, developing PBL and IB curriculum, among other skills, and by their <i>on-call</i> school-based mentors</li> </ul>

SRI Critical Friendship (SRI-CF)	<ul style="list-style-type: none"> <li>• For <b>residents</b>, SRI-CF is offered during <i>monthly cohort meetings</i> in Y1 and Y2 and <i>three times per year</i> in Y3</li> <li>• For <b>experienced teachers and Y3 residents</b>, SRI-CF is offered as <i>4-day institutes, monthly within/cross-school CF groups, single day teacher-leader workshops, national conference attendance, and/or year-long support</i> for CF coaches.</li> <li>• For <b>experienced teachers</b> interested in becoming cross-school CF teacher-leaders, <i>CF facilitator apprenticeships</i> are offered</li> </ul>
Cognitively-Based Compassion Training (CBCT)	<ul style="list-style-type: none"> <li>• For <b>residents</b>, CBCT (<i>offered as part of monthly cohort meetings</i>) is a <i>10-week course</i> in Y1 and Y2, with <i>follow-up</i> in Y3</li> <li>• For <b>experienced teachers</b>, CBCT is offered as a <i>10-week foundations course, a 4-day intensive course, and/or an 8 hour “Finding Center” intro experience</i></li> <li>• For <b>experienced teachers</b> interested in becoming CBCT teacher-leaders, CBCT is offered as a <i>7-day retreat</i> followed by a <i>teaching apprenticeship</i></li> </ul>
Induction Organizations Collaborative (IOC) “third space” meetings	<ul style="list-style-type: none"> <li>• <b>Members of the IOC</b> <i>meet monthly</i> to discuss/re-imagine teacher prep and support</li> <li>• <b>Members of the IOC</b> engage in cross-organizational experiences (attending induction meetings, courses led by other organizations, co-planning curriculum, etc.) <i>3 times per year</i></li> <li>• The IOC works with APS/MJ Cluster to design <i>yearly community-based events</i> to bring CREATE experiences (CBCT/SRI-CF) and other equity-based activities to CREATE communities</li> </ul>

Table 1 above describes the intensity and duration of CREATE services. Compared to traditional teacher preparation programs, engagement in CREATE dramatically increases the amount of *time* novice teachers practice teaching as well as the time they spend working with mentors and others with expertise in culturally responsive, engaging classroom practices. Speaking to quality *and* intensity and duration, CREATE increases opportunities for teachers and leaders to engage high-quality and meaningful PD—beyond simple “sit-and-get” workshops—that will impact their practice, collegiality, and cultural competencies. CREATE also provides much needed space and structures to bring together induction organizations for sustained conversation and hoped-for change. To highlight the quality of services, we draw on (1) published literature (summarized in A.1 above and further defined in B.1 below) that describes high quality services similar to those we provide *and* (2) the positive impacts on residents and experienced teachers of our i3-funded CREATE development work. For example, after completing two years in CREATE, 100% of current residents (n=41) indicated they would

“definitely or likely” recommend the program to others, and 40 of 41 residents intend to teach next year. Experienced teachers share similar positive feedback: 96% agree that “working with a resident contributes to me being a more effective educator” and 88% agree that “my resident is a more effective educator as a result of our work together.” Similarly, 100% of SRI-CF participants believe that engagement in CF has or has the potential to “address student achievement and increase collegueship and collaboration within my school.” CBCT is similarly well-regarded, with 96% of participants recommending that other educators in their school learn these practices. (See Appendix A for more preliminary survey data from Spr 17.) Finally, in recent reflections on our initial pilot of the IOC, all members (representing various IOC organizations) said they wanted to continue IOC work; as highlighted by one, “I am busy, lots to do, but I am all in. I am convinced that our best work and solutions arise when we collaborate.”

### A.3. Project Partners

CREATE is led by several project partners who work collaboratively to support new and experienced educators for work in high-needs schools. Figure 3 below presents those partners.

**Figure 3. Collaborative efforts of project partners**





***The CREATE leadership team*** (see resumes for all key personnel in Appendix B), led by Elizabeth Hearn, is comprised of four highly experienced teacher educators who bring particular expertise in traditional and alternative certification programs (including TFA), SRI-CF and CBCT facilitation [CPP1], and project-based/personalized learning [CPP2]. Ms. Hearn has successfully led previous versions of CREATE for more than five years and works closely with CREATE principals and GSU faculty to design appropriate programming for each school in the consortium. Under Ms. Hearn’s leadership, there is currently a trained cadre of 64 mentors and cooperating teachers, 26 CF teacher-leaders, and five CBCT instructors-in-training poised and ready to take on (and “own”) the next iteration of CREATE.

***Georgia State University (GSU)***, the lead applicant, is an urban research university graduating over 500 new teachers each year, 60% of whom are from underrepresented groups. Further outlined in the statement of eligibility (see Appendix C), GSU is an institute of higher education with a record of significantly improving student achievement through successful partnerships with local LEAs and their schools, producing teachers who impact student performance in K-12 schools, placing teachers in high needs schools, and retaining and graduating students. GSU has worked closely with the CREATE leadership team and CREATE schools for more than seven years—co-leading grant-writing efforts; researching and writing about CREATE and its earlier pilots for publication (see Cross & Thomas, 2017; Cross et al, in press); working collaboratively to place student teachers in CREATE schools and to support them through induction years; and more recently, leading efforts to better align GSU coursework with needs of local schools. Led by Dr. Stephanie Behm Cross, GSU faculty bring expertise in culturally sustaining/responsive pedagogy, and work closely with the CREATE leadership team to conceptualize what it means to support teachers in becoming culturally competent, responsive

teachers [CPP1]. GSU faculty are particularly interested in the work of the IOC as it aligns with their three-year goal of creating more community-based teacher preparation programs, and supports initiatives already underway to increase communication and understanding across the boundaries of schools and universities (see letter of support from Dr. Many, Appendix D).

*Atlanta Public Schools (APS)* is an urban school district serving 55,000 students at 103 school sites and is a critical partner in this work. The APS superintendent and school board have a strong track record of supporting CREATE's teacher residency program and have expressed continued interest in growing the CREATE/APS partnership. In fact, the APS superintendent has extended her "unwavering support" for this work (see letter of support from Dr. Carstarphen, Appendix D). More specifically, CREATE is centered in and around **Maynard Jackson High School (MJ) "Cluster"** in APS and addresses a specific 2013 cluster-wide needs assessment that calls for the development of "a culture of learning utilizing professional learning communities" and "high quality PD and collaboration for teachers that changes the way teachers think about teaching" (MCRETS, 2013). Even more recently, the cluster has drafted a mission to "facilitate learning, communication, and school/community action around issues of race and equity," which aligns with the overall pedagogical mission of CREATE and speaks to the likelihood of APS engagement in IOC-sponsored community work in particular.

Finally, two non-profit organizations—*School Reform Initiative* and *Emory Tibet Partnership*—and their highly-skilled facilitators offer SRI-CF and CBCT mindfulness professional learning activities to teachers and leaders in all CREATE schools *and* to interested project partners from both GSU and APS. The organizational missions of SRI-CF and CBCT (described in A1) align with the goals of CREATE to move this work forward.

As these partner relationships have developed over the past few years, there are already

Memoranda of Understanding in place between organizations and strong letters of support included in Appendix D. As project partners—each with a proven track record in teacher induction and together with *a history of effective collaboration* in previously funded work—we submit this joint proposal with an understanding of the importance of sustained and meaningful collaboration among project partners and a commitment to continuing our work well beyond the granting cycle. In addition, we hope to enhance the current literature base (see Penuel et al., 2015) around what it looks like when various institutions partner to support new and experienced teachers (Goal 3 and associated research) as we work toward the development of a grounded theory (Glaser & Straus, 1967) of cross-institutional collegueship.

#### **A.4 and A.5. Serving Those with Greatest Need**

The CREATE services and program design (outlined in Sections A.1, A.2, and A.3, above) will prepare a diverse group of new teachers to teach in CREATE schools while enhancing the teaching practices of educators currently working there. CREATE will serve **K-8 students of greatest need** on 12-16 campuses in the Atlanta Public Schools (APS), a high-needs district that serves 84% students of color and 75% students eligible for free or reduced-price lunch. For the past several years, CREATE schools have shown troubling scores on student achievement, college and career readiness, student attendance and school climate measures. For example, five of the CREATE schools were rated an “F” in career and college readiness (CCRPI) for 2012-2014 on Georgia’s statewide CCRPI measures; the four CREATE middle schools’ CCRPI average score was 68.8 when the state average was 72. The 8 CREATE elementary schools’ CCRPI average score was 59 when the state average was 76.5. The percentage of teachers in the MJ Cluster (where most CREATE schools are located) with five or fewer years of teaching experience, an indicator of school-based need in APS, was 26% in 2015,

while district wide the percentage was 21%. Georgia's STAR climate ratings were low in almost all CREATE schools and STAR student attendance scores averaged 67.5/100. Three-year trends in these campuses' percentile rankings for 5th and 8th grade ELA and Math from 2014-2016 (measured by state assessments) were also distressing. For example, 67% of CREATE campuses averaged below the 50th percentile in ELA across three years (including seven campuses with an average below the 20th percentile) and 75% have had two or more consecutive years of declining percentile rankings. In Math, 83% of CREATE campuses had a three-year average below the 50th percentile (including three schools with an average below the 20th percentile) and 67% have had two or more consecutive years of declining percentile rankings.

In response to these trends and statistics, APS principals have sought ways to boost teacher effectiveness and retention and improve school climate and student achievement. Aware that CREATE offers proven, evidence-based interventions designed specifically for teachers and students in Atlanta-area, high-needs schools, principals in and beyond the MJ Cluster have actively reached out to CREATE and its innovative programming for support and collegueship.

### **B. Significance**

Teacher turnover is high in high-needs schools, and seems to be *highest* at the middle level (grades 4-8), with two-thirds of educators (66%) exiting within the first five years (Marinell & Coca, 2013). This is particularly alarming when one considers recent longitudinal studies that show that students impacted by high teacher turnover score lower in ELA and math (see, e.g., Ronfeldt, Loeb, & Wyckoff, 2012) and that more experienced teachers have better classroom management and differentiation strategies, and are better able to increase student self-esteem (Ingersoll, Merrill, & Stuckey, 2014). Researchers have also documented a positive relationship between years of teaching experience and student test scores (Sass, 2007), and this effect seems

to be even stronger for historically marginalized students (Nye et al., 2004). With this in mind, the most significant of CREATE's three goals is to recruit and *keep* effective teachers teaching in high-needs schools. In the sections that follow, we summarize CREATE's significance, giving attention to (1) the importance of the results likely to be attained; (2) the extent to which the costs are reasonable; (3) the potential for sustainability beyond the granting period; and (4) the extent to which the results are to be disseminated.

### **B.1. The Importance of Results Likely to be Attained**

The importance/magnitude of results and outcomes likely to be attained by the proposed project fall into 3 categories: *numbers* of teachers and students impacted; what the attained outcomes would *really mean for high needs students'* well-being; and the extent to which study results obtained would determine the effectiveness of CREATE and allow others to replicate.

First, *the numbers*: CREATE will recruit and retain **54 new teachers** in high-needs schools and will provide PD to **610 experienced educators**, including **45 school leaders**, in these same schools. CREATE will also convene **14-20 educators** from four different induction organizations (GSU, APS, local APS schools, and CREATE) in order to determine ways to maximize alignment and effectiveness of induction programming in the region. This IOC work has the potential to impact **500 CEHD teacher candidates**, **80-90 new APS teachers**, and **hundreds of experienced APS teachers** each year, resulting in positive impacts for **36,200 K-8 students** in CREATE schools and **108,000 other APS students (K-12)** over the granting period (and thousands more beyond the end of SEED funding).

Next we examine the essential driver of our work: *What do high teacher retention, pedagogical effectiveness, and social capital really mean for high needs students?* All of the activities quantified above develop educators' capacities to maximize their impact on students,

an essential element in increasing student achievement [\[AP1\]](#) given that researchers consistently point to the teacher as the key factor in this area. According to a report from the Center for Public Education, “the effect of teaching on student learning is greater than student ethnicity or family income, school attended by student, or class size” (PSA, 2005). CREATE helps teachers envision classrooms that move beyond the rote instruction found in many schools serving high needs children (Darling-Hammond, 2010) toward classrooms and schools that feature project-based learning, service learning, and personalized supports for learning [\[CPP2\]](#). As Noguera and his colleagues (2016) suggest, this more meaningful or “deep learning” is *essential* for closing the achievement gap and serving all students equitably. Additionally, CREATE programming aims to impact student achievement by continually developing teachers’ cultural competence, their “ability to move beyond obvious aspects of a culture in order to understand and appreciate the values, symbols, and institutions of other cultures” (McAllister & Irvine, 2000, p. 13). We know that when teachers work to improve their cultural competencies, they are better able to sustain students’ cultures, identities, knowledge, and experiences (Paris, 2012); help students explore social injustices and their own privileges, biases, and intersectionality (Conklin & Hughes, 2016); and consider how systemic inequities affect students (Matias, 2015). Most importantly, such curricula offer us our best chance at positively impacting historically marginalized communities served by high-needs schools.

CREATE’s PD also works to develop educators’ social capital. According to Leana (2011), social capital resides in relationships among teachers, relationships that support teacher performance. In fact, Leana found that “even low-ability teachers can perform as well as teachers of average ability if they have strong social capital” (p. 34) and that social capital is a significant predictor of student achievement gains above and beyond teacher experience or ability in the



classroom. We know, too, that when students work with *multiple*, highly-effective, experienced, teachers, there is a cumulative effect on their achievement (PSA, 2005). This finding further highlights the importance of retaining *many* highly effective teachers in each CREATE school.

Lastly, we describe how our *study design--a quasi-experimental, matched comparison study explained in detail in Section D--and the complementary qualitative case study will produce important results* about the effectiveness of CREATE. Through an independent impact evaluation, Empirical Education Inc. will investigate the effects of CREATE on student achievement and teacher instruction and retention outcomes using a nonequivalent comparison group study, designed to meet What Works Clearinghouse (WWC) Standards with reservations (described in Section D). The power analysis of this study shows that educationally important impacts based on findings from previous rigorously conducted impact evaluations of similar programs will be detectable. Specifically, given available samples, and empirically-based parameter values concerning variances in outcomes and the explanatory power for covariates, we expect a minimum detectable effect size (MDES) value of .15 for impacts on achievement (this translates to between 2 months and 8 months in average annual achievement gain in reading and math depending on grade level (Bloom, Hill, Black and Lipsey, 2008)), and an MDES of .29 for impacts on quality of instruction assessed through TAPS (Teacher Assessment on Performance Standards). Further, we expect statistical power of 86% (above the conventionally acceptable level of 80%) for detecting impact on teacher retention three years following admission into CREATE. While there are studies on the positive impacts of comprehensive teacher residencies on teacher retention and student achievement, there are currently no studies that meet WWC standards examining resident-level effects of this sort of comprehensive PD approach. Thus, quantitative results will make a significant contribution to the literature.

In addition, an internal research team from GSU will design and implement a qualitative case study to complement the external evaluation, thereby enabling evaluators to gain a more complete picture than would be possible with only quantitative research. Preliminary research questions include: (1) What are the experiences of CREATE and non-CREATE teachers during their first two years of teaching? (2) How do the ways in which new teachers (CREATE and non-CREATE) conceptualize and enact culturally competent practices shape classroom environments? and (3) How do CREATE partners understand the work of collaborative, responsive, new teacher induction? The research team will conduct interviews with CREATE residents and matched comparison teachers; organize focus groups with mentors engaging in cultural competency work; carry out protocol-structured classroom observations of residents and matched-comparison teachers, and interview IOC members. Documenting and sharing the experiences of residents, experienced teachers, and induction organizations in CREATE will not only be useful for continual feedback/evaluation, but will also result in publications that further detail the work of CREATE for those who may want to replicate it in other high-needs districts.

## **B.2. Project Costs in Relation to Numbers Served and Anticipated Results/Benefits**

As one considers the *costs and benefits* of CREATE, an important corollary question is, “What are the costs of *not* doing this work?” The high rate of teacher attrition from high-needs schools places a monstrous financial burden on these schools and their districts. Nationwide, the U.S. spends \$7 billion annually to hire and train teachers to replace those who have either left the profession or changed schools (AFEE, 2014). This translates to a replacement cost of approximately \$17,000 per teacher, significantly impacting the budget of the entire district and decreasing funds available for comprehensive and sustained professional development such as that offered by CREATE. Results of a NCTAF (2007) analysis of turnover costs in five major

U.S. school districts further support the work of CREATE, suggesting that the hire-and-replace cycle in high-needs schools can be broken by following several steps to generate the greatest return on investment: targeting high-need schools; measuring and understanding the impacts of turnover; funding the recruitment and hiring of well-prepared teachers and supporting them with comprehensive induction programming; and sustaining these teachers as they become the experienced teachers in their school communities and as their schools transform into more generative learning organizations. By addressing new *and* experienced educator development simultaneously through a comprehensive, leave-no-stone-unturned approach to reaching teachers in all struggling schools of a region, CREATE provides a model that other large, urban, high-needs districts can replicate and that is likely to bring them significant financial benefit.

Cost effectiveness in relation to estimated numbers of educators affected: As stated in B.1 above, we estimate that 54 new teachers, 610 experienced teachers, and 45 school leaders representing 12-16 schools, will participate directly in the work of CREATE. While wide breadth—the number of educators “touched” by the program—certainly increases cost-effectiveness, it is depth—the degree to which educators are affected and changed by the programming—that truly drives CREATE’s design. Our most costly programming, the residency, brings deeply focused impacts to 54 residents across 3 years. Our CF, CBCT, and mentor training options, designed for experienced educators in CREATE schools, are equally focused on deep learning, occurring over extended time periods and including sustained follow-up opportunities. CREATE never turns to the kinds of quick, inexpensive, “sit and get,” one-size-fits-all professional learning programming that has been met with such limited success for both novice and experienced educators in the past (Borko, 2004; Donaldson & Moore, 2011). Instead, we use long-lasting (20-36 hour) professional learning institutes and recurring

experiences that are responsive to the needs and interests of teachers in CREATE schools. Most of these multi-day PD initiatives cost only [REDACTED] per participant (with much of that cost being paid directly to teachers as stipends) and have been shown (see Appendix A) to generate positive attitudes about CREATE, promote a sense of support and collaboration among educators, and invite “slow thinking”—something Kahneman (2011) describes as both a process and a culture that has yielded surprising breakthroughs/highly creative solutions to problems in the business world and which we have noticed having a similar effect in CREATE schools.

The economics of how CREATE’s costs may ultimately be absorbed by local, state and federal education departments and induction organizations are reviewed in the section below.

### **B.3. Sustainability Beyond the Granting Period**

Drawing on a comprehensive review of empirical and existing theoretical literature on scaling reform efforts, Coburn (2003) identifies the most powerful reform as that which can be “transferred from external organizations to teachers, schools, and districts,” proposing a “conceptualization of scale comprised of four interrelated dimensions: depth, sustainability, spread, and shift in reform ownership” (p. 4). With Coburn’s work in mind, CREATE has designed its programming around all of these scaling dimensions (as explained through earlier references in this application): *depth*, as “slow thinking” in section B.2, financial *sustainability* in B.2, *spread* as an effect of social capital in B.1, and a *shift in reform ownership*—“the incorporation of project purposes, activities, or benefits into the ongoing program of the agency or organization at the end of the grant” (SEED NIA, 2017)—addressed below.

CREATE and its collaborative partners are committed to a gradual reduction in the roles and responsibilities—financial and otherwise—of CREATE personnel over the course of the proposed five-year SEED grant. Human capital: Across grant years, CREATE will build human

capital in school-based mentors, teacher-leaders of SRI-CF and CBCT, and principals (in their growing understandings of how best to support new teachers). Each of these individuals will remain employees of their schools, embodying the program's norms and beliefs and utilizing CREATE strategies to contribute to the continuing development of human capital in others after the grant period. From research to shared norms and beliefs: the PD opportunities provided by CREATE will, during the grant period, supplement that which is otherwise provided by the university and district as outcomes are measured and programming refinements are made at the school, university and district levels. As part of the IOC already underway, APS, GSU and school leaders have engaged in and, where appropriate, contributed to the enhancement of each other's programming. For example, a school-based mentor has already co-taught a university class, APS has assisted with planning for the summer 2017 CREATE Resident Academy, and CREATE and APS/NTC have shared in and enhanced each others' mentor training sessions.

Once refined and confirmed to be effective, CREATE programming has the potential to replace some of the less effective programming for new and experienced teachers that is currently in place in APS and at GSU and/or will raise awareness of ways that reallocation of funds can better serve teachers and students. This has already begun, as principals who have participated in SRI-CF institutes intend to incorporate more CF practices into their staff and leadership team meetings across the grant period years and beyond. Secondly, GSU faculty involved in CREATE work are attempting to relocate university-based classes to be taught *in CREATE schools*, and will work with CREATE partners to refine syllabi to attend to the needs of local schools and districts when training new teachers. Additionally, APS induction directors will work with CREATE leaders and the New Teacher Center—with whom APS currently contracts for induction and intensive mentoring services—to determine how structures of mentor support

proven effective through CREATE might be incorporated into work already funded by the district. And finally, CREATE's SEED work will—based on its successes and the positive relationships among CREATE leaders and key APS administrators that already exist—elevate the issues of teacher support and mentoring to the forefront of district and state agendas.

#### **B.4. Project Dissemination**

Results from the CREATE initiative will advance knowledge and understandings in the fields of teacher preparation, induction, and university-school-district partnerships as we engage in sustained efforts to disseminate results in several critical educational arenas. First, the external evaluation team, Empirical Education, will focus efforts on evaluating and disseminating results on new teacher retention and effectiveness. As in past years, Empirical will publish interim and final research reports to be submitted to CREATE (so that programming can be adjusted throughout the granting period) and to the SEED granting agency. Upon completion of the grant, Empirical intends to publish at least one WWC-standards research article to a top-tier, high-impact education journal such as AERJ and present its research at the largest educational research conference in the U.S. (AERA) and at several smaller conferences, as appropriate.

Attending to results related to new and experienced teachers' overall experiences with CREATE and impacts on developing cultural competencies among teachers, the GSU research team will disseminate results from their qualitative case-study design through international, national, and local outlets. For example, the team will submit proposals to share results of this work at the International Conference on Urban Education (ICUE), AERA, and at several state-level conferences. In addition, the GSU team will continue to publish research articles in journals targeted to teacher practitioners, teacher educators (i.e., JTE), educational policy makers (i.e., EPAA), and the education community at large (i.e., AERJ). Similar to Empirical, the GSU team



will share interim and final reports with the CREATE team to inform its work moving forward.

Finally, as part of CREATE’s IOC, project partners—university faculty, CREATE leadership, and district and school leaders—will come together monthly to share informal results from their work, consider interim/final GSU and Empirical research reports, and design local and national presentations to other schools/districts who wish to replicate the work of CREATE.

## C. Quality of the Management Plan

### C.1. Clearly Specified and Measurable Goals, Objectives, and Outcomes

Table 2 below outlines the goals, objectives, and projected outcomes of CREATE programming, including a list of measures used to evaluate progress towards outcomes.

**Table 2. CREATE goals, objectives, and outcomes (with measures)**

<b>Goal 1: PREPARE and SUPPORT NEW TEACHERS [AP1a].</b> Create a new, sustainable, collaborative teacher pipeline through a school-district-university run 3-year teacher residency program designed to recruit and retain effective and <i>diverse</i> teacher candidates [CPP1b] committed to culturally responsive and sustaining classroom practices [CPP1a] and the personalization of instruction [CPP2]	
Objectives	Outcomes
Increase diversity of teachers working in high-needs schools	<ul style="list-style-type: none"> <li>There is an increase in representation of diverse teachers in CREATE schools (<i>measured by degree of diversity in CREATE</i>)*</li> </ul>
Increase social capital of new teachers working in high-needs schools	<ul style="list-style-type: none"> <li>Residents experience an increased sense of community while working with cohort members and within a CREATE school with various mentors (<i>measured by Social Capital survey</i>)</li> <li>Residents report increased opportunities for collaboration with others aimed at improving effectiveness (<i>measured by Social Capital survey</i>)</li> <li>Residents report improvement in classroom and school culture/climate (<i>measured by Social Capital survey, PRIDE survey</i>)</li> <li>Residents report improved relationships with students and colleagues (<i>measured by Social Capital survey, PRIDE survey</i>)</li> </ul>
Increase effectiveness of new teachers working in high-needs schools (including pedagogical effectiveness and cultural competencies)	<ul style="list-style-type: none"> <li>Residents show an improvement in their pedagogical skills, including use of personalized learning (<i>measured by TAPS teacher effectiveness scores; observation protocols</i>*)</li> <li>Residents demonstrate high levels of cultural competency by attending to students’ cultural funds of knowledge (<i>measured by interviews and observation protocols</i>)</li> <li>Students taught by CREATE residents show an increase in achievement (<i>as measured by Georgia Milestones test scores</i>)</li> </ul>
Retain highly effective teachers in high-needs schools	<ul style="list-style-type: none"> <li>Residents continue working in high-needs schools during and beyond the granting period (<i>as measured by retention</i>)</li> </ul>

<b>Summary of outcomes:</b> Upon completion of the CREATE grant period, district and school leaders will have an improved supply of diverse, effective, connected, and committed educators for their schools who will positively impact student and their achievement.	
<b>Goal 2: SUPPORT EFFECTIVENESS AND SOCIAL CAPITAL OF <i>EXPERIENCED</i> TEACHERS.</b> Offer <i>all</i> teachers opportunities to engage within or across-school professional development activities designed to positively impact overall school climate/culture and student achievement in high needs schools.	
Objectives	Outcomes
Increase social capital of teachers engaging in CREATE professional development opportunities	<ul style="list-style-type: none"> <li>Teachers experience an increased sense of community after engaging CREATE PD (<i>measured by Social Capital survey</i>)</li> <li>Teachers report increased opportunities for collaboration with other teachers aimed at improving effectiveness after engaging CREATE PD (<i>measured by Social Capital survey</i>)</li> </ul>
Increase effectiveness of teachers engaging in CREATE professional development opportunities	<ul style="list-style-type: none"> <li>Teachers report improvement in classroom and school culture/climate after engaging CREATE PD (<i>measured by Social Capital survey, PRIDE survey</i>)</li> <li>Students taught by CREATE residents (who work alongside experienced teachers), show an increase in achievement (<i>as measured by Georgia Milestones test scores</i>)</li> </ul>
Retain highly effective teachers in high-needs schools	<ul style="list-style-type: none"> <li>Residents continue working in CREATE schools during and beyond the granting period (<i>as measured by retention data</i>)</li> <li>Experienced educators are invigorated in their practice (<i>measured by focus groups/interviews, surveys</i>)</li> </ul>
<b>Summary of outcomes:</b> Upon completion of CREATE professional development opportunities (including training for experienced teachers to be school-based mentors and CBCT and SRI-CF for all teachers), teachers will experience increases in social capital and improved relationships with students and colleagues, and overall effectiveness in the classroom that will lead to improved teacher retention and increases in student achievement.	
<b>Goal 3: DEVELOP A “THIRD SPACE” AIMED AT ORGANIZATIONAL REFORM.</b> Develop a shared, sustained system through which teacher preparation and induction organizations collaborate, reflect, and work together toward the re-imagination and reform of teacher education and support.	
Objectives	Outcomes
District, university, schools and CREATE leadership (induction partners) create and sustain systems for working together to align practices for enhancing teacher effectiveness	<ul style="list-style-type: none"> <li>Increases in the number of cross-organizational relationships and activities related to new teacher training and induction (<i>measured by IOC members’ written reflections</i>)</li> <li>Improvement in the continuity of programming (designed to impact teachers’ effectiveness in high needs schools) between the university, district, and schools (<i>measured by resident interviews</i>)</li> </ul>
Project partners share learnings from this project widely	<ul style="list-style-type: none"> <li>Increased and timely knowledge sharing across induction partners (<i>measured by IOC members’ written reflections</i>)</li> <li>Presentation of CREATE findings to key education stakeholders</li> </ul>
<b>Summary of outcomes:</b> Upon completion of the granting period, CREATE project partners will have developed important communication and support systems to collaborate effectively on new teacher induction in order to sustain the work toward Goals 1 and 2 above. CREATE project partners will have also shared important learnings from this work -with local, state, and national educational stakeholders hoping to engage in similar work.	

\*Note: measures in *purple* collected/analyzed by Empirical Education; measures in *red* collected/analyzed by Georgia State University research team.

## C.2. Management Plan (including responsibilities, timelines, and milestones)

CREATE has been operationally successful for five years, managing programming that has been scaled from its 2012 cohort of eight residents in one school to its current state of multiple cohorts with 50+ residents, 70 mentors and CTs, hundreds of experienced educators and 12 school sites. CREATE has never missed a reporting deadline and has met or exceeded budget goals on two state grants, one federal grant, and seven private foundation grants, for a total budget of \$5.5 million over five years. Leaders at all 12 schools report they are satisfied or very satisfied with CREATE programming, and all intend to continue or grow their work with CREATE in future years (see Letter of Support School Leaders, Appendix D). The skills of program director Elizabeth Hearn and professor Dr. Stephanie Cross to lead the implementation and monitor the outcomes of CREATE are highlighted in their CVs (see Appendix B).

**Table 3. CREATE Management Plan**

**Note:** The milestones chart below includes actions that CREATE will engage in 17-18 and beyond to enhance the i3-funded CREATE model. None of the programming for which we seek SEED funding will also be funded by another grant. We will use SEED funding during the 2017-18 year to 1) begin work with a new cohort Y1 residents, 2) support experienced educator programming, and 3) engage IOC induction redevelopment and capacity-building activities, as indicated below and in the narrative. [As a contingency in case SEED funding is not awarded, foundation support has already been secured for the cohort entering in fall 2017 for one school year.] For clarity, please also note what is not included in the chart below: there will be Y2 and Y3 residents in place in 2017-18 and 2018-19 school years, finishing out their i3-funded residency, yet the work of the CREATE staff to support these upper level residents during these years is not listed in this milestones chart or the budget because it will be funded by the i3 grant.

**Change is afoot!** The residency that SEED-funded CREATE residents will experience differs from that of the i3-funded residency in two notable ways:

- For **SEED Y1 residents**, the instructional coaching role of university supervisors will expand to include the role formerly played by school-based mentors. This change is intended to increase both the intensity and duration of Y1 residents' coaching experience (as measured by # of hrs of coaching) while decreasing the number of scheduling requirements placed on Y1 residents. For this reason, it will be essential to hire and train university supervisors immediately upon notification of the award.
- For **SEED Y2 and Y3 residents**, instructional coaching will be provided by a full-time instr. mentor (IM) who will devote at least 1.5 hrs/wk to each resident. Previously, under i3-funded CREATE, all instr. mentoring was offered by school-based mentors who were full-time tchrs. Defining the mentor job in this way was too demanding for mentors and most were unable to coach with the intensity/duration called for by i3 CREATE program design. Hiring/training of IMs will occur in the spr. 2018.

Milestone	Responsible Party	2017-18 SY; PY1	2018-19 SY; PY2	2019-20 SY; PY3	2020-21 SY; PY4	2021-22 SY; PY5
<b>Hire University Supervisors</b>	PDDir & CREATE admin. team	August	If needed, June/July	If needed, June/July		
<b>Schedule all resident cohort meetings for school year, coordinating CF and CBCT trainings during the sessions</b>	PDDir & CREATE admin. team	August	June	June	June	
<b>Instructional mentor trainings &amp; meetings</b>	PDDir, CREATE admin. team, APS/NTC trainers	2 days in August, 2 days in October and every Friday	2 days in August, 2 days in October and every Friday	2 days in August, 2 days in October and every Friday	2 days in August, 2 days in October and every Friday	2 days in August, 2 days in October
<b>Convene CREATE admin. team</b>	PDDir	Weekly during SY; bi-weekly in summer	Weekly during SY; bi-weekly in summer	Weekly during SY; bi-weekly in summer	Weekly during SY; bi-weekly in summer	Weekly during SY; bi-weekly in summer
<b>Convene CREATE advisory implementation team meetings</b>	PDDir	Monthly during SY	Monthly during SY	Monthly during SY	Monthly during SY	Monthly during SY
<b>Convene Induction Organizations Collaborative (IOC)</b>	PDDir; GSU professors, APS team, school leaders	Monthly during SY	Monthly during SY	Monthly during SY	Monthly during SY	Monthly during SY
<b>Form CT-resident and mentor-resident pairings</b>	PDDir, CREATE admin. team, school leaders	Summer prior to SY and adjust as needed	Summer prior to SY and adjust as needed	Summer prior to SY and adjust as needed	Summer prior to SY and adjust as needed	Summer prior to SY and adjust as needed
<b>Select and train school-based mentors, CTs, and CF coaches</b>	PDDir, CREATE admin. team, school leaders	ongoing training during SY	Select and begin to train in spring/sum prior to SY; ongoing training during SY	Select and begin to train in spring/sum prior to SY; ongoing training during SY	Select and begin to train in spring/sum prior to SY; ongoing training during SY	
<b>CREATE school leaders' retreats to develop program</b>	PDDir & CREATE admin. team	Sept; Feb	Sept; Feb	Sept; Feb	Sept; Feb	

<b>CF institute 4-day trainings</b>	PDir, CREATE admin. team, and SRI-CF consultants	Oct. and possibly also Feb.	June, July, Oct. and possibly also Feb.	June, July, Oct. and possibly also Feb.	June, July, Oct. and possibly also Feb.	June, July
<b>Induction organizations collaborative (IOC) community programming</b>	PDir; GSU professors, APS team, school leaders	approximately bi-annual based on need, interest, and availability of desired programming	approximately bi-annual based on need, interest, and availability of desired programming	approximately bi-annual based on need, interest, and availability of desired programming	approximately bi-annual based on need, interest, and availability of desired programming	approximately bi-annual based on need, interest, and availability of desired programming
<b>CBCT teacher training; applications for program, engagement of training</b>	PDir & CREATE admin. team, ETP	Applications due in April, training in summer and fall	Applications due in April, training in summer and fall	Applications due in April, training in summer and fall	Applications due in April, training in summer and fall	
<b>Plan Summer Resident Academy</b>	CREATE admin. team	Feb thru May	Feb thru May	Feb thru May	Feb thru May	
<b>Review evaluation reports; adjust programming accordingly</b>	Empirical Education; GSU research team; CREATE implementation team	quarterly	quarterly	quarterly	quarterly	quarterly

### C.3. Procedures for Feedback and Continuous Improvement

Fundamentally, CREATE implementation team members and project partners believe that if programming is not working, it needs to change. We also believe that making sense of what does and does not work is a collaborative endeavor. With that in mind, *four CREATE teams* will work to consider feedback on programming and analyze preliminary data to ensure continuous improvement. (1) The ***CREATE administrative team***—consisting of the Project Director, three Assistant Directors, and one Administrative Assistant—meet weekly to plan upcoming CREATE programming, debrief past programming and discuss successes and trouble spots for CREATE residents and experienced teachers. This weekly meeting is critical to the success of the work and is always aimed at continuous improvement. (2) ***The CREATE advisory team***—consisting of the Project director, one CREATE school leader, one GSU faculty member,

and two SRI consultants—meets monthly to engage in more long-term program planning. This team will analyze preliminary quantitative data from the external evaluation team and qualitative reports from the GSU research team in order to examine and address any issues that arise. Led collaboratively by the Project Director and SRI-CF consultants, this group will use CF “looking at data” protocols to more deeply analyze project data and formulate next steps. (3) The ***Induction Organizations Collaborative (IOC)***—comprised of GSU faculty, CREATE administrators, school leaders, and APS district personnel—is the third component of CREATE’s continuous feedback and improvement cycle. The IOC will meet every month to review programmatic information and engage in collaborative inquiry into induction curricula, program design, routines, and policies across organizations. Working in this “third space” (described in A.1, above), IOC members will be able to collectively inform the induction work of the organizations they represent in order to better align programming and new teacher supports across organizations. The work of the IOC is essential to the continuous improvement cycle within CREATE and critical to CREATE’s sustainability during and after the granting period. (4) Finally, during the *annual CREATE implementation retreat*, all teams and members described above will come together with current CREATE school principals, prospective new principals interested in CREATE, and teacher leaders to evaluate performance relative to annual targets and adjust as needed to insure the *overall* success of the CREATE in meeting its goals.

#### **D. Quality of the Project Evaluation**

Empirical Education Inc. (Empirical), with extensive experience conducting large-scale, rigorous, experimental impact research as well as formative and process evaluations, will conduct the impact and implementation studies for this project. Empirical has led numerous evaluations through the DOE and brings this experience to the current SEED effort. (CVs for

Empirical team researchers are included in Appendix B). Specifically, through the SEED grant, Empirical will build on its three-year partnership as the independent evaluator of CREATE through an Investing in Innovation (i3) development grant. SEED provides the next-stage opportunity for evaluating and validating the CREATE program, as it continues to evolve and improve, in its support of effective educator development. The focus will be on assessing implementation of core and new elements of CREATE—collecting data from CREATE residents, experienced educators in CREATE schools, CREATE program administrators, and Georgia State University (GSU) administrators—and impact of CREATE on key indicators of teacher effectiveness and student achievement using a comparison group study designed to meet What Works Clearinghouse (WWC) standards with reservations. The comparison group will be comprised of non-CREATE teacher candidates who complete the GSU credentialing program.

#### **D.1. Performance Feedback/Assessment of Progress toward Achieving Intended Outcomes**

The evaluation is designed to provide frequent formative feedback and regular summative results to allow ongoing adaptation and improvement of the CREATE model and its implementation. (We follow the “Plan-Study-Act-Do” rapid feedback approach from Improvement Science [Lemire, Christie, & Inkelas, 2017]). Evaluation outcomes are aligned with CREATE’s goals and objectives with four categories of data collection and reporting activities (described below). The schedule for data collection is displayed in Table 4.

**D.1.1. Reporting key descriptives.** The goal is to collect and report formative data through surveys, interviews, and focus groups from CREATE participants—including residents and experienced teachers—to provide developers with timely feedback about progress towards planned outcomes. We will assess the following outcomes consistent with the goals of the project: diversity of CREATE residents, including in terms of ethnicity and gender, through

annual resident surveys; experienced teachers' sense of community, through annual administration of the Teacher Social Capital Scale (TSCS) (properties of all established surveys are described below and in Appendix E), and focus groups, with descriptive analysis of changes in outcomes over time; experienced teachers' opportunities for collaboration, through annual administration of TSCS and a general survey of experienced teachers; experienced teachers' sense of quality of school culture and climate, and quality of relationships with students and colleagues, through annual administration of the PRIDE Teaching Environment Survey (TES) (PRIDE Surveys, 2011) and interviews; experienced educators' level of satisfaction in teaching and desire to stay in teaching through the TES and evaluator-designed surveys

**D.1.2. Fidelity of implementation.** Following the i3 model for studying implementation, the focus is on assessing adherence to and ongoing adaptation of the program logic model (Appendix G) including key components, activities/outputs related to inputs/services, and attainment of fidelity thresholds (with thresholds identified with developer feedback during initial stages of the project). Outputs include: **levels of adherence to progressive core classroom roles of teaching**, with cooperating teacher in Year 1, team teaching in Year 2, and being sole teacher of record in Year 3 (based on official course description documents and annual surveys of residents); **levels of attendance at professional development (PD)** including of residents in summer academy, of mentors in cultural competency courses and mentor trainings, and of CREATE program participants in the School Reform Initiative Critical Friendship (SRI-CF) institutes and Cognitively-Based Compassion Training (CBCT) sessions (based on PD sign-in sheets and bi-annual surveys); **levels of attendance at cross-institutional meetings**, by eligible institutional representatives (based on sign-in sheets and follow-up through e-mail). To present a full picture of implementation, we will also survey comparison group teacher-candidates and



interview GSU administrators and teaching personnel to assess the extent of common components of CREATE and non-CREATE programs to establish the planned and realized Treatment – Control (service) contrast (Cordray & Pion, 1993; Cordray & Hulleman, 2009) and Achieved Relative Strength of the intervention (Hulleman & Cordray, 2009).

**D.1.3. Fidelity of intervention.** We will test the CREATE logic model by examining impacts on preliminary outcomes, which are posited to function as mediators of impact on instructional quality, achievement and retention. Using the non-equivalent comparison group design (described below) we will examine impacts on the following outcomes annually: levels of **social capital** (TSCS survey); sense of **community and cohesiveness** of links among teachers within schools (TSCS survey); opportunities for **collaboration** with other teachers (TSCS and evaluator-developed general survey of residents); **quality of school culture and climate** (TSCS and TES surveys); **quality of relationships** with students and colleagues (TCSC and TES surveys); **resilience** (Connor-Davidson Resilience Scale (CD-RISC)).

**D.1.4. Impacts on key distal outcomes.** The evaluation goal is to estimate impacts on primary and other important outcomes, using a non-equivalent comparison group study designed to meet WWC standards with reservations. (Confirmatory outcomes will be assessed after the third year of residency, for Outcomes 1, 2 and 3, below.) Outcome 1: Impact of CREATE on **teacher effectiveness** in instruction (based on TAPS scores obtained from the Georgia Department of Education (GA DOE)); Outcome 2: Impact of CREATE on **student ELA and mathematics achievement** in the third year of residency (based on GA Milestones assessment (gr. 4 – 8) obtained from GA DOE and other achievement measures (in K – 3) obtained from school districts); Outcome 3: Proportion of **teachers retained** in teaching one, two and three years following start of residency (outcomes obtained from GA DOE); Outcome 4: Proportion of

CREATE teachers who **teach at high needs schools** the year following residency (based on GSU records, with “high needs” defined by % of students eligible for free/reduced-price lunch).

**Reporting:** We will provide regular performance feedback using multiple data sources following the schedule in Table 4. The i3 fidelity of implementation reporting system will be followed as it is a proven model for identifying S(pecific) M(easurable) A(ttainable) R(ealistic) T(imely) goals, for monitoring progress, and for giving feedback to CREATE. In our experience, qualitative information garnered through interviews, focus groups, and open-ended responses to surveys provides essential details about challenges to implementation not captured through quantitative summary measures; therefore, we have built in opportunities to additionally assess outcomes in these ways. A major focus will be on departures of implementation from the program logic model (Appendix G), and necessary adaptations to that model. All indicators will be assessed regularly, summarized annually, and reported and discussed with CREATE directors to determine whether specific key components of the program, and fidelity thresholds for the use, should be adjusted, wholly adapted, or discontinued.

## **D.2. Valid and Reliable Performance Data on Relevant Outcomes**

**D.2.1. Research questions.** The study will address the following research questions. (Outcomes data will be combined across 2 or 3 cohorts, depending on timing of outcomes data collection.)

### **Confirmatory:**

- Is there a positive impact of CREATE, on achievement in mathematics and language arts in elementary and middle grades, among students of CREATE residents in their third year of the program, compared to students of novice teachers who completed the Business as Usual (BAU) GSU teacher preparation program?
- Is there a positive impact of CREATE on teacher instructional outcomes, compared to non-CREATE GSU teacher graduates, three years after start of residency, as assessed through the Teacher Assessment of Performance Standards (TAPS)? (dimensions: quality of instructional strategies, quality of learning environment);
- Is there a positive impact of CREATE, compared to the GSU BAU program, on teacher retention three years after entry into residency?

**Exploratory:**

- Is there a positive impact of CREATE on teacher preparation, compared to non-CREATE GSU teacher graduates, after one year of residency, as assessed through the edTPA assessment?
- Is there a positive impact of CREATE on levels of social capital, teachers' perceived levels of quality of school climate and community, and levels of collaboration, resiliency, and mindfulness, one, two and three years after entry into the residency program?
- Is there a differential impact of CREATE on student achievement depending on levels of student socio-economic status, incoming achievement, ethnicity, and in middle school compared to elementary school?
- Do impacts on residents' perceived levels of conditions for in-school community, sense of cohesiveness of links among teachers within schools, levels of resilience, and perceived levels of stress, one and two years after start of residency, mediate positive impacts on student ELA and mathematics achievement, among students of residents, three years after start of residency?
- Are there impacts, on outcomes listed under confirmatory analyses, four and five years after start of residency?
- What are levels of job satisfaction, and sense of school cohesion among mentor (experienced) teachers?

(Note: exploratory questions addressing outcomes from years 4 and 5 will be based on cohorts 1, or cohorts 1 and 2, only, to allow analysis within the timeframe of the grant.)

**D.2.2. Outcome Measures.** The evaluation relies on several key sources of data, utilizing, where available, established, reliable, and previously validated instruments, as well as evaluator-developed teacher survey items. (We describe the outcome measures and their psychometric properties, where available, in Appendix E.) **Milestones** (*assesses student performance in English Language Arts, mathematics*) is the Georgia state assessment and includes constructed response and norm-referenced items. Median reliabilities in grades 3 – 8 range between .88 – .89 in Language Arts, and .91 – .93 in mathematics (Georgia Department of Education, 2016). Data will be obtained through GA DOE (Georgia Department of Education, n.d.). **TAPS (Teacher Assessment on Performance Standards)** (*assesses teacher quality*) is a primary component of the Georgia teacher evaluation system and is a rubric-based rating system by which trained assessors (e.g., principals) measure teacher performance on ten performance standards. Inter-rater reliabilities, including between school leaders and Georgia DOE rating specialists, are

considered in the “substantial agreement” range, spanning .605 to .772. For confirmatory outcomes: instructional strategies .656, learning environment .619 (Georgia Department of Education, 2014). Data will be obtained from GA DOE. **Teacher retention** will be assessed for the full K-8 teacher sample based on whether a novice teacher is actively teaching by the end of the third year of the program. **edTPA** (*assesses teaching quality of first year residents*): used by teacher preparation programs to measure skills of teachers before they enter teaching. It addresses the quality of their planning (e.g., from lesson plans), instruction (e.g., from video recordings) and student assessment (e.g., based on samples of student work). Interrater reliabilities range between .83 and .92 (SCALE, 2015). Data will be obtained from GSU.

**Connor-Davidson Resilience Scale (CD-RISC)**: assesses resilience using a 10 or 25 item scale, with general test-retest reliability of .87; convergent validity has been demonstrated with the Perceived Stress Scale ( $r = -0.76$ ) (Davidson & Connor, 2016). **PRIDE Teaching Environment Survey (TES)**: consists of several scales, including career and intentions, shared decision making, school climate, students and learning, and the teaching experience (internal consistency reliabilities  $> .70$ ) (PRIDE Surveys, 2011). **Five Facets Mindfulness Questionnaire (FFMQ)**: assesses five dimensions of mindfulness (observing, describing, acting with awareness, non-judging of inner experience, and nonreactivity to inner experience) based on a factor analysis of five different mindfulness questionnaires. The internal consistency of the five questionnaires ranged from 0.81-0.87 and variables across questionnaires were significantly positively correlated with each other (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). **Teacher Social Capital Scale**: consists of three subscales including “preconditions/energizers” concerned with availability and potential to use and create opportunities for school personnel interactions supporting teacher and student learning ( $\alpha = .941$ ), “teacher bonding social capital” assessing

cohesiveness of links among teachers within schools ( $\alpha=.959$ ), and “teacher bridging social capital” assessing cohesiveness of links between teachers and community outside the school ( $\alpha=.774$ ). The survey is validated through demonstrating correspondence between the measures, theory of teacher social capital, and valued educational outcomes (Minckler, 2011).

### D.3. Produce Evidence that would meet the WWC Standards with Reservations

All questions concerning program impact will be assessed using a non-equivalent comparison group design (CGD) with matched samples of teachers and students. The study schedule including outcomes data collection is displayed in Table 4.

**Table 4. Projected Implementation and Outcomes Data Collection Schedule**

	2017/18	2018/19	2019/20	2020/21	2021/22
<b>Cohort 1:</b> CREATE Residents	Residency Year 1	Residency Year 2	Residency Year 3	Year 1 Post-CREATE residency	Year 2 Post-CREATE residency
Matched Comparison 1	Year 1 at GSU CEHD	Year 1 Post-GSU	Year 2 Post-GSU	Year 3 Post-GSU	Year 4 Post-GSU
<b>Cohort 2:</b> CREATE Residents		Residency Year 1	Residency Year 2	Residency Year 3	Year 1 Post-CREATE residency
Matched Comparison 2		Year 1 at GSU CEHD	Year 1 Post-GSU	Year 2 Post-GSU	Year 3 Post-GSU
<b>Cohort 3:</b> CREATE Residents			Residency Year 1	Residency Year 2	Residency Year 3
Matched Comparison 3			Year 1 at GSU CEHD	Year 1 Post-GSU	Year 2 Post-GSU
<b>Schedule of OUTCOMES DATA COLLECTION FOR COHORT 1 ONLY. (Data collection for Cohorts 2 and 3 will be the same but shifted later by 1 and 2 years, with curtailment in Spring 2022.)</b>					
	2017/18	2018/19	2019/20*	2020/21	2021/22
	edTPA, retention in program				
	TES, TSCS, FFMQ (Mindfulness), CD-RISC				
		Milestones, TAPS, retention in teaching			

\*TAPS, Milestones, and retention outcomes contribute to confirmatory impact analysis in Y3 of residency

**D.3.1. The CGD is designed to meet WWC evidence standards with reservations.** The

design is exactly parallel to one used with the impact study of CREATE for i3. It has demonstrated to be implementable over multiple years, with rounds of data collection.<sup>4</sup>

**Power Analysis:** We power the study to detect impacts on student achievement assessed at the end of Year 3 for each resident cohort, and analyzed across cohorts (the chief confirmatory outcome). We expect student achievement outcomes for 48 CREATE residents and 70 matched comparison teachers at the end of Year 3. (Numbers are based on annual enrollment in the GSU teacher candidacy program and the current i3 study; for the first of three cohorts of CREATE residents in the i3 study, 19 of 20 have remained in the study through Year 3.) Specifically, we expect 150 non-CREATE teacher-candidates to enroll in GSU over three years; of these, approximately 100 will be matched to CREATE residents (process described below), with 30% attrition yielding a final teacher sample of 70. We expect 54 CREATE applicants with attrition of 6 (11%), yielding 48. For the power analysis, to be conservative, we reduced the number of residents and comparison teachers for SEED to 30 CREATE and 50 comparison—the numbers of residents we expect will be placed in grades 4–8 and for whom we will obtain Milestones achievement scores (to assess both equivalence and impact) directly from GA DOE, with whom we have standing relationship through i3 (see letter of support in Appendix D). Achievement outcomes for K – 3 will be based on district-specific assessments. We expect high returns because GSU graduates who go on to teach in K – 3 are generally placed in Atlanta Public Schools (APS) and several larger surrounding districts; we have a standing relationship with APS and are actively pursuing agreements for acquiring data from the other districts, as part of i3. However, to be conservative, for the power analysis we count only the expected numbers of

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<sup>4</sup> We are not able to report on confirmatory impact results from i3, as data, including student achievement, and teacher instructional and retention outcomes, are being secured from GA DOE in summer 2017.

teachers and students in grades 4 – 8. We applied the standard equation for the Minimum Detectable Effect Size (adapted from Bloom, Richburg-Hayes and Black [2007] and Schochet [2008]) (Equation 1 below). We assume  $n = 20$  students per teacher (post-attrition, and post-matching), power 80%, Type-1 error 5%,  $(30/80) \times 100\% = 37.5\%$  of teachers in the treatment condition (i.e.,  $P = .375$ ), ICC ( $\rho$ ) of .17 (based on empirical sources from IPR, n.d.) and  $R$ -squared values of .75 and .50 for teacher- and student-levels, respectively. The resulting MDES is .15, and is approximately the value of observed impact of residency programs like CREATE with CGSs (e.g., Turner, Goodman, Adachi, Brite & Decker, 2012) and RCTs (Glazerman, Mayer & Decker, 2006; Clark et al., 2013).

$$MDES = M_{1,1,1}(\alpha, \beta) \sqrt{\frac{!(!!!)!(!!\#\$!!!")}{!(!!!)!} + \frac{!(!!!)(!!!)!(!!\#\$!\%&?)}{!(!!!)!}} \quad (1)$$

The MDES for impacts on teacher practice (TAPS) is .29 assuming rates of Type-1 and Type-2 error of .05 and .20, respectively, a reasonable expected value for impact given that the instructional outcomes are more proximal and more strongly aligned to skills targeted by CREATE. We expect to obtain TAPS outcomes for 48 and 70 teachers in CREATE and comparison groups, respectively, after three years of residency; and we assume covariates (including school fixed effects) and extensive baseline measures will account for 70% of the variation in ratings scores. For retention, we expect 30 of 100 non-CREATE and 6 of 54 CREATE teachers to attrite within 3 year of enrolling in their respective programs. Power for detecting the difference in proportion attriting (30% - 11%) is .86. Given the relatively small number of schools in the study, we will model school effects as fixed, with random sampling variation modeled at the teacher level (and student level for estimates on achievement.) The effect size multiplier  $M_{1,1,1}(\alpha, \beta)$  account for degrees of freedom lost from modeling school fixed effects and teacher-level covariates (Bloom, 2005), and is set to 2.85 (Schochet, 2008).

**CGS design and matching:** *Samples:* The initial pool of 150 potential comparison cases and 54 CREATE residents will be provided incentives to respond to an initial baseline survey addressing motivation for entering the teaching profession, teachable subject areas, confidence with teaching specific subject areas, whether teacher candidates will hold a job while in teachers' college, levels of math anxiety, confidence in several teaching skill areas (e.g., classroom management), coping under stress, high school GPA, and undergraduate course of studies. (Quality of matching in quasi-experiments, in terms of potential for reducing selection bias, depends greatly on the quality of the baseline data, and less on sophistication of matching technique [Bloom, Michalopoulos, & Hill, 2005; Cook, Shadish, & Wong, 2008; Jaciw, 2016]); therefore, we stress the importance of capturing detailed baseline data.) Per cohort, we will subject the full sample of CREATE and potential comparison cases to matching procedures (Euclidean or Mahalanobis distance matching). This will reduce the number of comparison teachers to approximately 100 who are closest matches to CREATE participants. *Stage-1 Teacher Matching:* We will match comparison to treatment cases in terms of 4 or 5 variables, given the limited sample sizes of teachers. Because the baseline survey poses multiple questions in several areas, we will use data reduction methods to obtain scores on 4 or 5 central dimensions. We will also conduct an exploratory factor analysis (proc FACTOR in SAS with oblique PROMAX rotation) on responses to baseline survey items to identify distinctive factors and calculate factor scores for individuals. Matching may be conducted in terms of factor scores with factors weighted based on the proportions of variance that they account for. We will match with replacement. Each CREATE member will be matched to the two closest matched comparison cases. The 54 CREATE residents and roughly 100 comparisons cases will constitute the "base number" of individuals for whom we will calculate attrition (retention) and obtain



measures of teacher outcomes (e.g., EdTPA, TAPS) among non-attributing members. *Stage-2 Students:* We follow the approach used by Turner et al. (2012) in their quasi-experimental study of the impact of Teach for America. Within each grade level (or across adjacent grade levels if sample sizes at a given grade level are very small), a logistic regression model—with student demographics, and the prior year’s achievement, as conditioning variables—will be used to compute propensity scores (all student data in the regression will be obtained from the year prior to being taught by study teachers). Demographic variables will include ethnicity, economically disadvantaged status, special education status, and limited English proficiency. We will explore both sub-classification and one-to-one matching with replacement. With sub-classification, we will use the approach described in Michaelopoulos, Bloom, and Hill (2004) and in Dehejia and Wahba (1999), including use of specification tests for balance within subclasses and re-specification of propensity score generating equations, if needed. We anticipate about 2,500 – 3,000 students in the analysis.

**D.3.2. Analysis:** *Analysis of primary research questions. Impacts on achievement (after 3 years of residency):* With the sub-classification approach, we will create five subclasses based on the quintile distribution of estimated treatment group propensity scores and conduct specification tests to assess balance within subclasses on covariates, until an adequate number of strata is arrived at (following Michaelopoulos, Bloom, and Hill, 2004). We will then conduct within-stratum regressions (achievement scores will be z-transformed within grade to be put on a common scale, as recommended by May et al. [2009] and Somers et al. [2011]) and take a weighted sum over the strata to arrive at average impact estimates (weights being set to the proportion of treatment teachers in each stratum). Regressions will be of individual student scores against the indicator of treatment status, student covariates (e.g., pretest), and teacher covariates

(e.g., baseline survey responses); also, we will include a teacher random effect to adjust for clustering of students in teachers. (HL models are provided in Appendix F.) *Impacts on teacher effectiveness*: We will use linear regressions with TAPS scores as the outcome variable and teacher characteristics (baseline survey responses) and class averages of student characteristics as covariates. *Impacts on retention*: Logistic regression will be used to estimate the log odds of retention in the teaching profession in each condition, as well as a difference between conditions in the probability of retention, three years after entry into the GSU induction program (outcomes: 1=retained, 0=not retained) with the same covariates as above. Given the relatively small number of schools, fixed effects will be used in all impact analyses to indicate school membership. All impact analyses will be conducted per resident cohort and averaged across cohorts. *Other analyses*: Differential impacts will be assessed by adding a term for the interaction between the indicator of treatment status and the hypothesized moderator to the regression models. Questions of impact on key mediators (e.g., levels of teacher resilience) will be extended to formal mediator analyses. These will be conducted within a multilevel framework (Krull & MacKinnon, 2001). In addition to a regression-based approach to mediation (which rests on strong assumptions concerning the causal relationship between mediator and outcome variables), we will use a principal stratification approach (Frangakis & Rubin, 2002; Jo, Stuart, MacKinnon, & Vinokur, 2011; Page, 2012). The mediation analyses will help to determine the active paths in the logic model (see Appendix G). Power may be limited for these analyses; therefore, we consider them exploratory. Analyses will be conducted using PROC MIXED and GLIMMIX in SAS as well as specialized programs such as *Remediation* (Tofighi & MacKinnon, 2011) and *mediation* in R (Imai, Keele, Tingley, & Yamamoto, 2010). Researchers will also conduct a series of sensitivity analyses to test robustness of benchmark impact estimates for the primary

research question, including the use of simple alternatives such as hierarchical models to estimate impacts on the treated and matched comparison group. For the confirmatory impact analyses addressing the three primary research questions, we will follow WWC topic area review protocols to report all statistics necessary for WWC review, including sample sizes at each stage in executing the study design and baseline equivalence of teachers and students (in terms of demographics and pretests where available and applicable) for analysis samples, as well as for the sample of teachers that serves as the baseline for tracking retention.

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