Helping High-Need Districts Hire, Develop, and Retain Highly Effective Teachers

A Proposal by New Teacher Center, partnering with
Chicago Public Schools and Miami-Dade County Public Schools.

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New Teacher Center (NTC) submits a 3-year proposal for Supporting Effective Educator (SEED) program, responding to Absolute Priority 1 (Supporting Effective Teachers) and the Competitive Preference Priority (Promoting STEM education). In partnership with Chicago Public Schools (CPS), Miami Dade County Public Schools (M-DCPS), and external evaluator SRI Education, NTC proposes to dramatically disrupt how teachers are recruited, developed, and retained, resulting in a sustainable and scalable solution to the national teacher shortage and quality crisis. This project identifies two well documented deficits in the teacher quality pipeline: deficient clinical experiences and support for pre-service teachers (PSTs); and inadequate instructional support for all new teachers, especially alternative certification (Alt Cert) teachers, who are responsible for student learning from day one. Supported by moderate evidence, this proposed project will reach 216,000 students and 3,030 teachers (with an emphasis on new STEM teachers), aimed at creating an aligned support system for scale across the nation. NTC and partner districts will provide:

- Improved Clinical Experience for PSTs: Cooperating teachers (CT) will participate in NTC's practice changing, evidence-based professional learning in order to provide an instructionally focused, improved clinical experience for PSTs, thereby accelerating their development and better preparing them for the demands of the classroom.

- Enhanced Recruitment and Hiring: PSTs will have preferential hiring and be attracted to positions due to stronger clinical and job-embedded supports during student teaching. Additionally, partners will focus on hiring these well-supported teachers into high needs schools to ensure the students who need the best prepared teachers are getting them.

- Retention strategies for PSTs and Alt Cert Teachers: In order to retain teachers and accelerate their practice, two years of NTC's evidence-based, job-embedded teacher induction (TI) will

be provided to the recruited and hired PSTs once they are teachers of record. To disrupt the status quo approach to supporting Alt Cert teachers, they will receive intense, instructionally focused support from highly trained mentors coupled with targeted content support to ensure completion of credentialing requirements. Together, PSTs and Alt Cert Teachers will receive comprehensive professional development opportunities, emphasizing math and science content for teachers assigned to those areas. This development will both accelerate their practice, set them on a higher trajectory for skills and knowledge, and provide the early success that will lead to higher retention.

<u>Moderate Evidence of Effectiveness</u>: NTC submits two citations from external evaluations applying well-designed and well-implemented experimental studies (randomized controlled trials, RCTs) to meet the required moderate evidence standard *demonstrating statistically significant impact* on student learning. One study was reviewed by the What Works Clearinghouse (WWC), Glazerman et al[i] and meets WWC evidence standards without reservations. The second study, Schmidt et al[ii] has been submitted but not yet reviewed by the WWC. Both studies found statistically significant and favorable impacts on student achievement, without statistically significant and negative impacts on relevant outcomes. Samples of both studies overlap with the proposed sample and both studies use similar processes and practices proposed in this project.

The Glazerman evaluation of comprehensive mentoring models (one treatment was the NTC model) assessed the impact of NTC's comprehensive strategies and processes for supporting new elementary school K-6 teachers on several outcomes including student achievement. Beginning teachers in the treatment schools received comprehensive TI (described below) and those in the control schools received the traditional district support The study found

that students of teachers in the treatment group performed significantly better in reading (effect size of .11; $p < .05$) and mathematics (effect size of .20; $p < .05$) compared with students of control teachers in the third year of teaching, based on the sample of teachers whose students had both pre-test and post-test scores and were supported for two years. The sample included 1,347 students and 74 teachers for reading and 1,198 students and 68 teachers for math. The WWC 2013 single study review of this evaluation determined the study meets WWC evidence standards without reservations.[iii]

The Schmidt et al study also tested whether students in treatment schools whose teachers received support from NTC-trained mentors attained higher achievement than students whose teachers received traditional district support. The relevant outcome for the study is student learning for grades 4-8 in math and reading/ELA. The baseline difference for the ELA outcome was 0.10 standard deviations and 0.01 for the math outcome. A baseline measure of achievement was included in both models. The NTC program demonstrated that students whose teachers received two years of support from an NTC-trained mentor had higher academic performance in both reading/ELA (0.09 standard deviation ($p < .05$)) and mathematics (0.15 standard deviation ($p < .01$)) than students of teachers provided traditional district support. The study showed statistically significant and positive effects of NTC support on student learning and no statistically significant and negative effects on any other relevant outcome. These results were found with a large sample across two districts (ELA included 6,147 students nested in 149 teachers; math included 4,972 students nested in 129 teachers) and attrition was below the WWC acceptable threshold. <u>Overlapping practices:</u> The practices from both studies overlap directly with the program components proposed for this SEED project. The components are based on a similar logic model tested with a similar population (new teachers). The logic model describes

NTC program components such as: 1) Support to build infrastructure, including: capacity building for sustainability beyond the grant and infrastructure such as program standards, formative assessment tools, and a data capture and monitoring platform; 2) Mentor selection and assignment; 3) Mentor (and CT) development: training, support from the site lead, peer coaching, and goal setting; and 4) High-quality teacher support: Use of formative assessments, interaction time, and focus on equity and instruction. <u>Relevance of outcomes and practices:</u> Both the outcome of student learning and the program practices and components overlap with the proposed SEED project. Student learning in grades 4-12 in math, reading/ELA, and science will be the outcome studied for the SEED project, and the program components described above overlap with the proposed SEED project. Additionally, the sites are similar across the studies and the proposed SEED project - large, urban districts with diverse populations.

A1. Exceptional Evidence Based Approach. The national teacher shortage crisis (with shortfalls in math and science) has dire effects on the most disadvantaged students.[iv] Many of the 330,000 new teachers hired each year in the U.S. are disproportionately assigned to high-need schools where they lack the training and support to successfully prepare their students to succeed. [v] [vi] This project takes an exceptional approach to this problem by creating and refining a nationally scalable system of support that disrupts how teachers are hired, developed, and retained by aligning both student teaching and the development of Alt Cert teachers with NTC's evidence-based program model, increasing the number of highly effective teachers in CPS and M-DCPS. Student teaching, the key clinical experience of traditional PSTs, is central to new teachers' preparedness, effectiveness, and retention, and ineffective student teaching experiences are falling short of meeting teacher needs.[vii] [viii] Nationally, we are also seeing an increase in those entering the profession as Alt Cert teachers (over 25% of new teachers), and their attrition

is 8% higher than traditional teachers, due to factors including a lack of access to teacher preparation and poor in-school support. [ix] Once in the classroom, both groups of teachers often experience fragmented approaches to professional development, which has been clearly demonstrated as ineffective, while systematic mentoring and coaching as a primary means of delivering and reinforcing professional development dramatically increases teacher practice and student achievement.[x] [xi] NTC is the *national leader* in teacher development partnering with states and school districts nationwide to design and implement evidence-based mentoring, coaching, and professional development opportunities for educators that as described above, has been shown to improve student achievement. NTC's TI model, designed over the past 20 years, is substantively different from "buddy" mentoring that is the common default in school districts today, strengthening teacher practice by developing veteran teacher leaders as exemplary mentors who work 1:1 with new teachers. NTC not only brings to the partnership the independently proven impact of its TI program, but years of experience and learnings aligning student teaching to TI, working with LEAs in the following states: Oregon, Virginia, Michigan, Minnesota, Florida (additional information is in **Appendix F**). In order to both improve the quality of the student teaching experience of PSTs and better support Alt Cert teachers, aligning the support they receive to TI, this project focuses on improving three weaknesses in teacher preparation including: 1. Poorly developed Cooperating Teachers (CTs); 2. Lack of alignment between the pre-service experience and broader teacher development efforts in the districts; 3. Alt Cert teachers entering the field without prior teaching experience.

1.Poorly developed CTs: There are over 250 hours CPS and M-DCPS CTs may share a classroom with a PST over 10 weeks of student teaching, presenting an enormous opportunity to impact practice and prepare a student teacher for the demands of their own classroom. Yet

receive little training around supporting the development of PSTs and do not go through a

[xii] [xiii] CTs often engage PSTs in non-instructional tasks such as copying and stapling rather than observing CT's planning and reflection time or offering feedback (a significant lever shown by NTC to increase student learning and teacher practice).[xiv] [xv]

As student teachers are better prepared when CTs offer mentoring and instructional support, it is essential for CTs to be more rigorously selected, have clarity on their role, and receive effective professional development and mentoring around their own practice.

2. Lack of Alignment: Districts also rarely integrate PST development into their broader teacher development goals, and this lack of alignment can actually discourage PSTs from applying to the schools where they did their student teaching due to feelings of alienation and dissatisfaction.[xvii] [xviii] However, when a PST's work with a CT focuses more on instruction and preparing to enter the classroom, they are more likely to work in the school they are student teaching in, and to stay in the field. [xix] This project will investigate how NTC's model can accelerate teaching practice and student learning at a faster rate by aligning the student teaching experience with high quality induction (having CTs and NTC mentors use the same language, tools, coaching, as well as observation and feedback strategies), thereby setting PSTs on trajectories for strong instructional practice and increasing their commitment to high needs schools.

3. Alt Cert teachers entering the field without prior experience: Due to both the growing, national teacher shortage crisis and questions over the effectiveness of traditional teacher training, the number of Alt Cert programs has increased over the past decade; they now make up

over 30% of all teacher preparation programs in the U.S. [xx] [xxi] While we believe that Alt Cert teachers help contribute to a vibrant, diverse workforce for students, Alt Cert teachers do not have access to any pre-service experiences and as a result, teachers are often placed into a sink or swim environment. Attrition rates for teachers who lacked student teaching experience are triple after five years in the classroom. [xxii] [xxiii] Given the rise of Alt Cert candidates as part of the overall teaching force, it is imperative that we provide evidence based supports to better induct them into the profession. Through the assignment of a highly developed mentor who can support instructional practice (both content and pedagogical) as well as directly support these teachers in achieving their credential, we can ensure this investment remains in our highest need schools.

A2. Intense, instructionally focused support, emphasizing STEM teachers. NTC will implement and evaluate an innovative, evidence-based professional learning approach to addressing the three areas of weakness identified above and to create alignment across districts in how teachers, especially Math and Science, are developed. Additional information about NTC's overall model, with an emphasis on Math and Science teachers, can be found in section A.3 and Evaluation in Section D.

Cooperating Teacher Support: Once selected, CTs will receive professional learning that develops mentoring skills to deepen their work with PSTs. Aligned with NTC's Teacher Induction (TI) model, CTs will receive 4 days of professional development support (32 hours), the outcomes of which include the ability to: support professional growth environments for PSTs grounded in the norms of inquiry, formative assessment, and problem solving; practice the attitudes, language, behaviors, and skills of effective CTs; identify needs of PSTs and modify support; apply academic (ELA, Math, NGSS) and district teaching standards and tools that integrate formative assessment and support; enhance individual skills around evidence-based

data collection to inform PST analysis and support; collaborate as a professional learning community to consider impact of this model on PST practice and district priorities.

Mentor Professional Development: NTC's Professional Learning Series (PLS) is a sequenced and recursive curriculum (four, 3-day sessions during Y1 and Y2) that supports mentors through the development of mentoring knowledge and skills using NTC's Formative Assessment System (FAS) while building a community of learners who support each other's growth. The content is scaffolded and anchored around: mentoring language and entry points, planning lessons grounded in both standards (ELA, Math, NGSS) and curriculum, guiding teachers through the observation cycle, collection of formative data to platform mentoring conversations, and analyzing student work. Throughout the 2 years, mentors receive 64 hours of professional development.

CTs and Mentors will also engage in an NTC-led, 4-hour community of learning after each professional learning called a *Forum* (12 hours for CTs and 40 for mentors), continuing to expand their skills and knowledge of best practices for teacher development. Facilitated forums: create a collaborative community of practice; deepen coaching skills; provide for accountability in a supportive environment; and encourage sharing and analysis of data to track program impact. CTs and mentors also engage in a parallel formative assessment using data collection, a continuum of development, and goal-setting and peer coaching processes.

Alt Cert teachers professional development: In addition to benefiting from ongoing support from a mentor for their first 2 years in the profession, NTC will provide direct professional learning around planning standards-based content in ELA, Math, and Science, calibrating around effective instruction, and connecting academic learning goals for students with the optimal learning conditions that best enable them to succeed. The aim of these 3 days is

to connect the coursework teachers will be engaged in during Year 1 with their field-based experiences in the classroom. This will strengthen their ability to achieve their credential as well as quickly and effectively drive instruction that elevates the learning of their students.

Supporting School Leaders: As school leaders play an essential role in teacher effectiveness and retention, NTC expands the capacity of principals to support high quality teaching. NTC will present 8 hours of professional development for school leaders on supporting PSTs and Alt Cert teachers' pathway to TI and developing their capacity to work with teachers to advance their instructional practice through formative observation strategies and developmentally appropriate, focused feedback.

NTC's work with Cooperating Teachers, Mentors, Alt Cert Teachers, and School Leaders is grounded in our *Formative Assessment System*. NTC's FAS is a unique research-based series of high impact collaborative tools (available in ELA, Math and Science), protocols, resources, and processes that advance teaching practice and student learning. Aligned with locally adopted professional teaching standards, state-adopted student standards, and district goals, the FAS provides the common foundation for accelerating the development of teacher practice, from student teaching through TI. Grounded in common tools, protocols and language, FAS is currently accessed via NTC's Learning Zone, an online portal allowing CTs, mentors, and participating teachers to analyze, document, and organize mentoring and observational data in a secure location. Additionally, data can be aggregated to the caseload and program level, allowing program leads to understand trends, and problem-solve for continuous improvement.

A3. Partner Collaboration and Capacity Building. With CPS and M-DCPS, NTC will implement a comprehensive program that includes the following essential components to ensure deep collaboration in order to maximize the project's effectiveness:

1. Committed partners

2. Implementation support, alignment, and capacity building

3. Rigorous CT and mentor recruitment and assignment

4. Comprehensive development for CTs, mentors, Alt Cert teachers, and school leaders

5. High-quality mentoring

1. Committed partners: NTC will co-establish and sign formal Memorandums Of Understanding and action plans with district partners, defining the scope of the partnership and outlining agreements to provide the fundamental supports, dedicated resources, as well as commitments to high quality implementation and sustainability, and specific aims supporting their intention to implement, expand and sustain NTC programming beyond the term of the grant. **NTC** supported over 34,000 teachers and 7,600 mentors and coaches during the 2016-17 school year, impacting the learning of 2.6 million students. NTC has always understood the need to align its TI work with pre-service. One of its core Induction Program Standards is: Program leaders collaborate with organizational leaders to ensure that program goals and practices align with those used in teacher preparation, teacher and administrator professional development, leadership development programs and teacher/administrator evaluation.

Chicago Public Schools is committed to creating and sustaining a seamless student teaching to TI experience in order to double the number of high-quality PSTs placed in high needs classrooms, with specific attention to STEM. Currently, CPS hosts 1,000 PSTs each year, but only places 35% in CPS classrooms. Since 2006, CPS and NTC have partnered around a TI program to improve student outcomes and reduce teacher turnover in the city's most under-resourced communities, supporting the development of more than 3,500 beginning teachers, and

increasing the learning of over 13,000 high-needs students. Recently, NTC and CPS have begun to align the experience of PSTs through the development of CTs.

In **Miami-Dade County Public Schools**, the majority of their 1,000 + annual openings are filled with Alt Certs, creating a demand for a district-led program that provides a strong induction experience and connects that to their broader teacher development initiatives. In partnership with NTC over the last two years, M-DCPS has begun taking steps towards more intentional, evidence-based support for their new teachers across 200 schools, but that support has thus far excluded the alignment with the student teaching experience and the intentional focus on Alt Cert teachers. As part of their Vision 2020 plan, M-DCPS seeks to dramatically reduce teacher attrition and better develop aligned practices of talent development across the entire system. Teacher attrition varies dramatically across the district with some schools seeing attrition two to four times higher than other.[xxiv]

2. Implementation Support, Capacity Building: Implementation of the model begins with a pre-assessment of CPS and M-DCPS' human capital continuum. Special focus is placed on understanding existing teacher placement practices, current teacher retention rates, and assessment of district resources that can support cooperative teaching and mentoring. NTC will also analyze existing professional development with an eye on the maximum effect on learning per dollar invested. In order to build district capacity, professional development for CTs, mentors, and Alt Cert teachers will be presented by NTC in collaboration with CPS and M-DCPS, certifying partners to license materials and professional development to conduct on their own at the end of the grant. To ensure this, NTC, CPS, and M-DCPS will implement a program-level formative assessment system that includes program standards and a continuum, allowing partners to monitor program implementation. NTC will work with LEAs to advocate with school

boards and other stakeholders for continued investment in the model. NTC will also provide direct technical assistance on implementing the model within their own contexts, and will also assist in writing project reports, press releases, and grant proposals for potential funders for future program funding.

3. Rigorous Cooperating Teacher and Mentor Selection and Assignment: NTC will work with CPS and M-DCPS to develop a recruitment and application process to select exemplary teachers to serve as CTs and mentors, involving collaboratively developed job descriptions, interviews focused on the analysis of a classroom teaching video, and interviews consisting of mentoring scenarios, a sample teaching lesson, and a written reflection. Selected mentors are released from some classroom and other duties in order to have sufficient time to meet the rigorous mentoring expectations and will work with an average of 1.5 teachers. CTs are full-time classroom teachers and will work with an average of 1 PST per semester.

4. Professional Development for CTs, Mentors, School Leaders and Alt Cert teachers: Please see A.2.

5. High Quality Mentoring: Participating teachers will receive approximately 94 hours of mentoring support. From CTs, PSTs will receive 720 minutes/month of face-to-face mentoring for 2.5 months (with a focus on co-teaching and modeling of effective instruction, lesson planning classroom environment, observation and feedback, analysis of student work, and preparation for entry into classroom). Through NTC's TI, mentors will provide Alt Cert teachers and former PSTs 180 minutes/month of face-to-face mentoring for the first 2 years of teaching (with a focus on lesson planning, observation and feedback, and analysis of student learning, and developing habits of mind around equitable, effective teaching and learning). NTC's work with CTs and mentors is shaped by NTC's FAS, as described in Section A2.

A4. Focus on Greatest Need. High teacher turnover is the primary cause of poor school performance, particularly striking in schools with more low-performing students, and the shortage of experienced teachers is going to increase due to the decreased enrollment in teacher training programs, down 10% from 2004 to 2012.[xxv][xxvi] In addition, approximately 30% of urban public schools with high poverty and minority populations have difficulty retaining math and science teachers.[xxvii] 80% of CPS students and 70% of M-DCPS students are identified to receive a Free or Reduced Lunch. There is an urgent need in CPS and M-DCPS to recruit and retain high-quality teachers. In CPS, the 3rd largest school district in the nation, 33% of first year teachers left within the first year of teaching, creating a revolving door of novice teachers.[xxviii] In M-DCPS, roughly 1,000 new teachers are placed a year. The main hiring strategy for M-DCPS is through a district-run alternative certification program which hires about 800 teachers a year as the number of student teachers hired into full time positions has declined to about 250 in 2016-17. Working with these two very large, very complex districts, this project offers to disrupt the status quo approaches to recruiting and retaining new to the profession teachers. Through this visionary approach to providing a strong clinical experience with an aligned new teacher experience, districts are offered an alternative, scalable, and sustainable approach to ensuring the highest needs students have a prepared and skilled teacher in front of them from day one.

A5. Meeting the Needs of the Target Population. Teachers are "less likely to leave the profession if they are provided with a coach or mentor working deeply on instructional practice and if they participate in formal planning and collaboration with other teachers." [xxix][xxx] This project will increase the number of high-quality traditional and Alt Cert teachers in CPS and M-DCPS. Additionally, tackling the teacher shortage and under-preparedness of teachers in two of the largest, most diverse districts serves as a national model for providing a better education to

the most at risk youth. It will serve the needs of disadvantaged students in CPS and M-DCPS by increasing student achievement, thereby narrowing the achievement gap and resulting in students who are more college and career ready. By building a strong pool of CTs and mentors who reside in their districts, and building the capacity of districts to implement and sustain the work, this project also addresses the needs of future CPS and M-DCPS students. As this project will create an aligned, scalable model of support, the study will serve as a model to other districts to help increase the number of highly effective teachers across the nation.

B1. Importance and Magnitude of Result. Nationally, large urban districts struggle year after year to find the best teachers to fill the classrooms of the highest needs students. This project tests a scalable, replicable solution that can be implemented with fidelity. Annually, each partner district hires about 1,000 prospective teachers. This is non-trivial in terms of the number of candidate teachers supported annually, especially when considering only a fraction are in the district three years later. This project offers an enormous opportunity to expose a large cadre of aspiring teachers to strong early teaching experiences that will improve their starting position for becoming teachers of record. Research shows that habits established early remain late into teachers' careers. By making deep investments in their skills and knowledge at the start, these districts are setting them on a higher trajectory which will have implications for student learning far beyond the life of the project. Additionally, based on the assumption that a strong student teaching experience will lead to better teacher candidates, both districts are pledging aggressive recruitment strategies to double the number of PSTs hired into the highest needs positions. In order to ensure successful experiences in these positions, this project provides high-quality TI support for two years.

Over the course of this project, we anticipate supporting over 3,000 teachers who will influence over 216,000 students; however, the habits built by this support will impact students beyond the three year grant. Additionally, our approach to build district capacity through a gradual release of implementation from NTC to the districts ensures a scalable, long-term, district implemented strategy for recruitment, support, and retention of highly effective teachers that will collectively influence student learning for years to come. Together, these strategies expect to: 1. Increase the number of highly effective teachers starting in CPS and M-DCPS [measured by district effectiveness data]; 2. Improve both teacher practice and student learning (measured by observation scores and student assessment scores); 3. Create an aligned pipeline of new teacher support that can be scaled across the nation.

To ensure this project makes valuable contributions to the field and can share the impact of the work on the critical outcomes named above, together with our external evaluator, the project has identified statistical magnitude and impact in Section D. The effect sizes and required sample sizes are detailed so we can ensure the project delivers on empirical tests of effectiveness to further not only our learning and the districts' learning but also make valuable contributions to the field.

B2. Cost Benefit Analysis. As a national non-profit organization, NTC has engaged in a comprehensive cost model review to ensure costs are both reasonable and sustainable for district partners. We can establish that these total program costs and cost per student (estimated at around $885) are reasonable in light of the costs of other, less broadly powerful programs. A 2007 cost-benefit analysis that monetized increased teacher effectiveness and examined savings from reduced teacher turnover found that every $1.00 invested in a comprehensive induction program produces a return of $1.66 after five years[xxxi]. The benefit from investing in teacher

induction lies in large part in the acceleration of teacher impact on student achievement and savings from increased teacher retention. The proposed total project budget is   ,806,780 over 3 years, based on analysis of data from our four previous federal grants to ensure that costs will meet the demanding needs of the project. The project proposes to frontload program costs of building infrastructure and training that will allow for the gradual transfer of responsibility for program implementation from NTC to the partner district has the dual virtue of increasing the strength of program leadership at the local level and decreasing costs by reducing NTC's participation. CPS and M-DCPS joined this partnership because, at their highest levels, there was strong support for the program and a wish to grow it and take on ownership. Each of our partners have agreed that they will be prepared to sustain essential program costs once the grant funding ends in light of their conviction that this cost-effective model will improve teacher effectiveness, raise student achievement, and aid in reducing the financial drain that teacher turnover creates. (A 2007 analysis of Chicago Public Schools deemed the cost of recruiting and preparing a replacement for each teacher who left the classroom at between $17,872 and $22,000.)[xxxii]

B3. Sustainability post grant. NTC's strategy to build district capacity and yield results that will extend beyond the grant period relies on its long-standing ability to build bridges among stakeholders invested in improving teacher effectiveness. NTC's primary relationships, however, are with its district partners, helping to ensure program sustainability and growth. NTC's model is designed to be intensely collaborative and embeds gradual transition in program ownership because it assumes from the outset the gradual reduction of NTC's role in the process. NTC's intentional focus on building leadership at every level in schools and districts integrates our sustainable strategies into the mindsets, beliefs, and practices of the educators we support, positioning them to guide effective teacher development. CTs and mentors will continue to be

employees of their districts and their growing expertise becomes part of an enriched pool of district human capital. By having districts contribute to these costs, there will not be a human capital cliff at the end of the grant. Engaging in reflective practice about mentoring will simultaneously strengthen the instructional skills and practices of CTs and mentors, and enhance schools' overall capacities to develop teachers and teacher leaders.

Support from the Funding Community: NTC enjoys philanthropic support from a vast and diverse network of funders, and currently receives support from over 100 funders. NTC has raised over $150 million in private funding and has secured the required Year 1 private sector match. Documentation of this commitment to can be found in in the budget.

Community Support: NTC, CPS and M-DCPS demonstrate the highest commitment to implementation, scalability, and sustainability of this project. Letters of support are in **Appendix D.**

B4. Dissemination of learnings. Anticipated learnings include deeper understanding of critical levers related to improving student learning; how to strategically develop CTs to maximize district investments in teacher leaders; how the NTC model develops a common language and methodology between student teaching and new teacher development by focusing on multiple stakeholders; how to strengthen and improve Alt Cert teacher practice from day 1, and how to help districts and states understand how to alter pre-service and TI policies to ensure high quality implementation and outcomes. NTC will use the following mechanisms to broadly disseminate this information across the field to further support replication:

National Program Leader Network (NPLN): CPS and M-DCPS will participate in NTC's NPLN, a long-standing hallmark of NTC's support to LEA partners that fosters program discipline, fidelity, and continuous improvement. Participation will provide a virtual and physical

community of practice between the LEA partners and 23 other NPLN district members, allowing LEAs to share strategies that support key elements of teacher effectiveness.

NTC's National Symposium: NTC's Symposium is an annual, national event in which over 900 educators, administrators and other organizations gather to learn more about designing and implementing high quality teacher and school leadership programs.

National Exposure: Not only will the grant affect at least 216,000 students, but because CPS and M-DCPS are key markets for national education policy, the success of the comprehensive model will receive prominent national exposure. NTC, CPS, M-DCPS, and SRI will have opportunities to present findings at conferences sponsored by organizations such as Learning Forward,   , and American Educational Research Association

Reach and Growth: Annual reports and webinars prepared by SRI will integrate findings across data sources, addressing implementation, impact, and exploratory questions as appropriate during the study. SRI will also provide informal formative feedback to NTC, CPS, and M-DCPS based on qualitative and quantitative data captured during implementation. Additionally, through NTC's i3 Validation grant, NTC has collaborated with the U.S. Department of Education (on both presentations for other grantees and a blog post that shared our evaluation activities) and would plan to do so again with this grant. National media placements, increasing social media reach, and the vast network of partners NTC, CPS, and M-DCPS have created throughout all 50 states, provide a national forum to disseminate and share the results and findings across the education sector to be used by other organizations for an even broader impact.

(C1) The goals, objectives and outcomes for this proposal are to:

Goal 1: PROVIDE INSTRUCTIONAL SUPPORT FOR TEACHERS
Create a sustainable, scalable strategy for new teacher development that improves teacher practice for 3,000+ teachers and learning for 200,000+ students, including in priority areas.

Objectives	Measures
Train cooperating teachers and mentors to support strong clinical and teaching experiences for PST and Alt Certs	-% of CTs and mentors successfully completing training
Develop teachers during pre-service clinical experience, and transition to classrooms and alt cert teachers during first two years	-% of PSTs and Alt Cert teachers receiving high levels of instructional support ○ Frequency and duration of coaching ○ Focus on instructional skills

Outcomes
This project aims to improve the instructional practice of PSTs and alt cert teachers as measured by observation data (Evaluation Questions 1 & 2); improve retention of teachers measured by HR data (EQ 3); improve student learning including in math and science measured by student assessment data (EQ 4 & 5)

Goal 2: BUILD A SUSTAINABLE TEACHER DEVELOPMENT PATH
Develop district capacity through training, gradual release, and monitoring and improvement to ensure a district-owned approach to developing and retaining effective teacher talent.

Objectives	Measures
Monitor progress towards target benchmarks to provide feedback for ongoing improvement and sustainability	-Implementation indicators: attendance, level of instructional support, reaction to support
Build district capacity to own new teacher development program	-Completion of capacity building strategies: participation in networks and training academies and district alignment and development of sustainability plan
Complete external evaluation to empirically test impact and codify key levers to improving student learning, teacher practice, and retention	-Exploratory and confirmatory analyses using teacher records and student assessment data
Disseminate results to share with district partners and the field to better understand how to invest in teacher development	-NTC national channels including: national symposium and national program leadership convenings, blogs, posts, and white papers -Evaluation partner activities including: presentations and scholarly articles

Outcomes

This project will unpack what levels of implementation contribute to improved outcomes and what are barriers and facilitators to strong teacher support measured by program records, surveys and interviews and focus groups (EQ 6-8). The project will produce formative and

summative data to help districts codify a scalable solution and then share results widely with practitioners and researchers.

C2. Management Plan. NTC has gone from managing a handful of program engagements in 1998 to managing over 150 per year in 2017. It has accomplished this by being well managed and by delivering excellent work on time and on budget. The strength of named project staff can be seen in the resumes in **Appendix A**. NTC proposes replicating successful management structures from its past SEED and i3 grants.

NTC SEED Management Council: Manages the overall implementation of the initiative and will be led by the Project Director. The primary focus of the Council is to meet the goals and objectives of the SEED grant, managing the initiative with fidelity to the aims and requirements. Members include: Project Director, Finance Director, Impact Director, Client Leads, and Senior Program Manager.

SEED Evaluation Council: Meets virtually once per month to discuss issues of evaluation implementation. Members include SRI International, NTC's Impact Director and impact analysts, CPS Program Lead, and M-DCPS Program Lead. Once per year, SRI convenes all NTC and grant stakeholders at NTC's annual Symposium to review evaluation design and high-level findings across sites.

SEED Advisory Committee: Once per year, NTC will convene stakeholders of local and national pre-service experts and community partners to strengthen the connection between the grant objectives and national pre-service alignment efforts, elicit input on implementation, and build collective excitement and interest in expanding this work beyond the grant.

SEED Site Visits: Two times per year, NTC Management Council members visit CPS and M-DCPS for in-person visits with Program Leader and other district leadership to review implementation and interim outcome data, identify and solve problems of practice, and establish action plans and next steps for high quality implementation.

Federal Grants Site and Program Lead Forums: Each month, NTC Site Leads meet to discuss topics related to implementation, deal with issues of contextualization, and plan cross-site learning. Forums are facilitated by the Senior Program Manager.

Table 1: Timeline and Milestones

Key: CT= Cooperating Teacher; PD= Project Director; FD= Finance Director; VPI= Vice President, Impact; PI= SRI Principal Investigators; IA= Impact Analyst; SPM= Senior Program Manager; SL= Site Lead; CPS/M-DCPS= LEA Partners

Activity	Milestone	Responsible	Year and Quarter		
			YI	**Y2**	**Y3**
Partner Capacity Building					
Project Goals	Sign MOUs, hire positions, meet with SRI	PD, FD, VPI, PI, CPS/M-DCPS	Q1		
CPS, M-DCPS Technical Assistance	Provide technical assistance to support implementation & capacity building	SL	Q1-Q4	Q1-Q4	Q1-Q4

Roles and Responsibilities					
CT Selection	Recruit, select, assign CTs	SL, CPS/M-DCPS	Q1, Q3	Q1, Q3	Q1, Q3
Mentor Selection	Recruit, select, assign mentors	SL, CPS/M-DCPS	Q2	Q2	Q2
Program Assessment, Evaluation, and Accountability					
Data Collection	SRI and NTC collect program data	SPM, PI, VPI, IA, CPS/M-DCPS	Q1-Q4	Q1-Q4	Q1-Q4
Reporting	SRI and NTC report out around program data	PI, VPI, IA	Q4	Q2, Q4	Q2, Q
SEED Evaluation Council	Discuss issues of implementation related to evaluation	PD, VPI, PI, IA, CPS/M-DCPS	Q3, Q4	Q1-Q4	Q1-Q4
Professional Development					
CT Professional Development	4 days of Professional learning for CTs per year for 2 years	SL, CPS/M-DCPS	Q1, Q3	Q1, Q3	Q1, Q3

CT Forums	6, two hour professional learning communities	SL, CPS/M-DCPS	Q1-Q3	Q1-Q3	Q1-Q3
Mentor Professional Development	4 full days of professional learning per year for 2 years	SL, CPS/M-DCPS	Q3, Q4	Q1-Q4	Q1-Q4
Mentor Forums	10 half days professional learning communities	SL, CPS/M-DCPS	Q3, Q4	Q1-Q4	Q1-Q4
School Leader Professional Development	8 hours of professional development to school leaders	SL, CPS/M-DCPS	Q1, Q3	Q1, Q3	Q1, Q3
Alt Cert Teacher Professional Development	3 days of professional development	SL, CPS/M-DCPS	Q3, Q4	Q1-Q4	Q1-Q4
Content Development / Alignment					
Professional Development for CTs	Refine content to incorporate mentoring strategies and pre-service teacher needs	PD, CPS/M-DCPS	Q1	Q1	Q1

FAS and Learning Zone					
Implementation	Implement Learning Zone for CTs, TI Mentors	SL, CPS/M-DCPS	Q1-Q3, Q4	Q1-Q4	Q1-Q4
Reporting	Review quarterly LZ data with partners to discuss issues of implementation	SL, CPS/M-DCPS, IA, SPM	Q3, Q4	Q1-Q4	Q1-Q4
Grant Oversight					
SEED Management Council	Council supervises the entire program	PD, FD, VPI, SL, SPM	Q1-Q4	Q1-Q4	Q1-Q4
SEED Advisory Committee	Input and support from pre-service national experts	PD, CPS/M-DCPS	Q2	Q2	Q2
SEED Site Visits	Visit CPS and M-DCPS to review implementation, interim outcome data and set next steps	PD, FD, VPI, SL, SPM, CPS/M-DCPS	Q4	Q2, Q4	Q2, Q4

Site& Program Lead Forums	Discuss topics related to implementation deal with issues of contextualization, and plan cross-site learning	SL, SPM, CPS/M-DCPS	Q2, Q3, Q4	Q1-Q4	Q1-Q4
Dissemination					
Communications Plan	Disseminate results and learnings	CPS/M-DCPS, SPM	Q4	Q2,Q4	Q2, Q4

NTC and its partners bring a wealth of expertise in education and have a dedicated group of educational leaders and managers to execute its project. NTC proposes the following key roles based on our past experience implementing federal grants.

Project Director (75% FTE) will be NTC Vice President, Laura Baker who oversees NTC's work in high profile LEAs such as Broward County Public Schools, Charlotte Mecklenburg County Public Schools, and Tulsa Public Schools. Laura will oversee the strategic implementation of the work, manage the staff implementing the project, lead the Management Council, and have ultimate responsibility and authority over the project.

Project Finance Director (60% FTE) will be NTC's Senior Grants and Contract Analyst, Ellen Kendrick, who has been overseeing NTC's existing federal grants since 2015. Ellen will oversee business and operations aspects of the project, administer the funds that are passed through to the partners, and manage the relationship with the Department of Education.

Vice President of Impact (50% FTE) will be Ali Picucci, PhD who oversees NTC's i3

Validation, Scale Up, and SEED studies as well as overseeing research to improve NTC products

and services. She has 16 years of experience in educational research and program evaluation and

four years of experience as a public school teacher in secondary schools. Dr. Picucci will oversee

NTC's performance management internally and across the partners, providing feedback to make

program improvements. Dr. Piccuci is also the liaison with the SRI International evaluators.

Evaluation Co-Principal Investigators from SRI International will be Dr. Rebecca Schmidt

and Ms. Lauren Cassidy. Dr. Schmidt is an expert in quantitative methods and analyses and is

currently a co-PI of the evaluations of NTC's i3 Validation and Scale Up grants. Ms. Cassidy has

more than 14 years of experience in education research, managing large-scale projects, and

leading qualitative data collection and analyses. She is the project director for NTC's SEED

grant investigating instructional coaching, and was the project director for the Validation grant.

Ms. Katrina Laguarda will serve as supervisor and senior advisor.

The Impact Analyst (100% FTE) will support SRI, LEAs, and NTC with data gathering and

reporting and will be charged with monitoring ongoing day-to-day implementation data across

the sites. This position will be hired upon notification of award.

The Senior Program Manager (100% FTE) will be Shelley Winterberg, who has served in this

role for NTC's i3 Scale Up and SEED grants and prior to coming to NTC, was a mentor in

Hillsborough County Public Schools, which utilizes the NTC model. Shelley will ensure that the

program is implemented with fidelity, manage timeline and deliverables, provide support to

implementation staff, and coordinate implementation activities.

The Site Leads (65% FTE each) will be Milissa McClaire-Gary for CPS and Ivette Concepcion

Gonzalez. Milissa brings many years of experience in teacher development and leadership of

complex projects as well as a deep teaching background in CPS. Ivette leads NTC's current

partnership with M-DCPS and prior to joining NTC, was a lead coach in Broward County Public

Schools, a district that uses NTC's model. Both Milissa and Ivette support program

implementation and fidelity, providing critical technical assistance and consultation as well as

program delivery to build the capacity of district program leaders and mentors.

C3. Ensuring Feedback and Continuous Improvement. As described above, all the

management and collaboration structures employed are designed around continuous learning and

program improvement to measure both fidelity to the model being proposed, and also ensure that

model is adequately allowing for site-specific contextualization. NTC's work is centered around

the intentional redundancy of the inquiry cycle (plan, implement, collect data, reflect, plan)

across all levels of implementation. As described in Section A2, the work with PSTs, CTs,

Mentors, Alt Cert teachers, and School Leaders is grounded in NTC's innovative and proprietary

FAS, which allows for immediate collection and analysis of data to drive program improvement.

The FAS system provides a dashboard with real-time data that tracks leading indicators research

found predictive of student learning including the intensity and instructional focus of teacher

interactions. This ability to quickly diagnose areas and use data to drive specific improvements

creates inherent efficiencies and long term improvements that improve the return on investment

through this project. Additionally, the project will provide formal formative and summative

frequent evaluation findings to the stakeholders to inform programmatic advancements.

D. Quality of Project Evaluation. SRI Education will conduct an independent, rigorous

evaluation to document implementation and identify the impact of the two phases of the NTC TI

model, including: 1) student teaching—supporting CTs for the district PSTs, and 2) TI—

supporting mentors for PSTs served under Phase 1 and hired by partner districts as well as Alt

Cert teachers hired by M-DCPS.[1]

The evaluation will feature a randomized controlled trial (RCT) design (Figure 1). In

Phase 1, we will randomly assign half of the CTs to NTC treatment and half to control.

Treatment CTs will receive NTC supports, and control CTs will receive status quo supports.

PSTs assigned to CTs in will inherit the CT's treatment status, and in Phase 2, carry it forward if

they are hired into districts. Alt Cert teachers hired into the same schools as traditionally certified

teachers (former PSTs) from Phase 1 will inherit the treatment status of their hiring school.

Where Alt Cert teachers are hired into schools that do not also have a traditionally certified study

teacher, we will randomly assign the schools, half to treatment and half to control.[2]

Figure 1. Treatment Assignment of Student Teachers and Alt Cert teachers
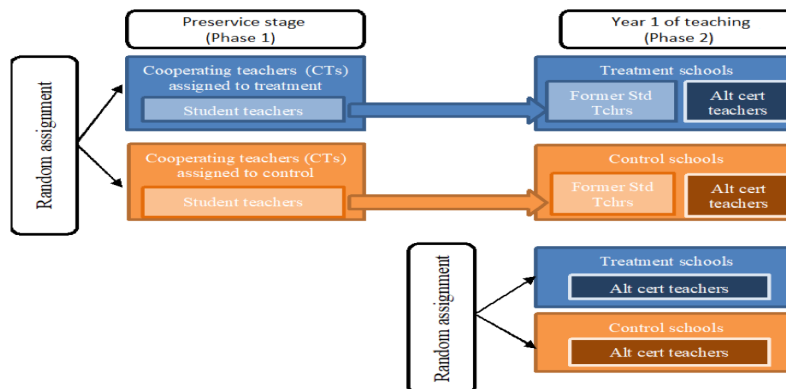
The evaluation will address key impact and implementation questions that reflect NTC's student

teaching and TI model. Impact questions: (1) Does participating in NTC-supported student

teaching result in better teaching practices in the domains of classroom environment and

instruction after the student teaching phase? (2) Does participating in the NTC-supported TI

model result in better teaching practices in the domains of classroom environment and

instruction after 2 years of full-time teaching? (3) Does participating in the NTC-supported TI

model result in improved teacher retention in the district after 1 year? After 2 years? (4) Does

participating in the NTC-supported TI model result in improved student achievement in reading, math, and science after 2 years of full-time teaching? (5) Are student or teacher outcomes moderated by the type of teacher served (Alt Cert versus traditionally certified)? Implementation questions: (6) What is the level of participation in each phase of the intervention: (a) student teaching with an NTC-trained CT, and (b) induction mentoring for 2 years at the intended level of frequency and focus? (7) What factors contribute to and what factors hinder strong implementation at each phase? (8) What factors support sustainability for student teaching and induction supports in the district?

Impact Study: *RCT treatment and control samples:* All CTs and their student teachers in CPS and in eligible schools in M-DCPS [3] will be randomly assigned to treatment (50%) or control (50%) in 2018–19 to form the samples for the Phase 1 (student teaching). This sample will be used for implementation measures of student teaching and CT participation in NTC training. The sample for Phase 2 (TI support for 2 years) will include all student teachers of the CTs who become teachers of record in the districts in 2019–20 (see light blue and orange boxes in Figure 1), as well as all Alt Cert teachers who are hired as teachers of record in M-DCPS in 2019-20 (see dark blue and orange boxes in Figure 1). The sample of former student teachers (traditionally certified teachers) will be used for the interim outcome of teacher practice after the student teaching phase. The entire sample (traditionally certified and Alt Cert teachers) will be used for implementation measures pertinent to the 2-year induction period and the outcomes of teaching practice after 2 years, teacher retention, and student achievement.

Student outcome measures: To assess students' academic achievement, SRI will collect annual student test score data linked to teachers for 2019–20 and 2020–21. The study will use scores on the state standardized tests, including the PARCC, FSA, Illinois Science Assessment,

Florida Statewide Science assessment, Biology end-of-course exams, and the PSAT. SRI will collect student achievement and demographic data from the districts to establish equivalency at baseline and to control for students' prior achievement.

Analysis of NTC effect on student reading, math, and science achievement:[4] SRI will conduct student test score analysis for new teachers in ELA, math, and science in grades 4 through 12 (with grade 3 as the pretest for grade 4), after the first year of full-time teaching and after the second year of teaching at the end of the intervention. Researchers will standardize test scores within each district at each grade level and conduct analysis combining all tested grades. This analysis will involve positing multi-level models (MLM) with student, teacher, and school levels. The model is:

$$y_{cij} = \beta_0 + \beta_1 (NTC_{ij}) + \beta_m (m^{th} std\ cov_{cij}) + \beta_l (l^{th} Tchr\ cov_{ij}) + \beta_k (k^{th} Schl\ cov_j) + u_{cij} + r_{ij} + e_j$$

where *c* is students, *i* is teachers, *j* is schools; Y_{cij} is a student reading, math, or science score; and u_{cij}, r_{ij}, and e_i are student, teacher, and school random effects. β_1 is the estimated impact of the NTC program on student achievement.

Power analysis for student outcomes: The minimum detectable effect size (MDES) for research question 4 is 0.138, assuming 12% of the variation in student test scores lies at the school level and 16% at the teacher level; that student pretest and other covariates explain 61% of the between-school variation; and that there are 362 4th- through 12th-grade teachers teaching reading, math or science in 241 schools.[5] Using the same assumptions, the MDES for the moderation effect of teacher type is 0.24 (assuming 210 traditional and 152 Alt Cert teachers).

Teacher outcome measures. The evaluation will include three teacher outcome measures: fall 2019 observations, spring 2021 observations, and teacher retention. Classroom observations will use the classroom environment and instruction domains of the Danielson framework,[6] an externally validated instrument that aligns well with the NTC model.

Sample for teacher outcomes: To measure teacher practice among traditionally certified study teachers in fall 2019 (research question 1), SRI will randomly select teachers of core subjects after they are hired by the districts. The sample will be blocked by district and teacher type (traditionally certified or Alt Cert). To preserve random assignment, the traditionally certified teachers will be selected from among the full pool of student teachers in Phase 1. Based on past hiring patterns, we expect up to 50% attrition from this sample between student teaching and the first year of teaching in the district. Therefore, we will select 340 student teachers in CPS (with an expectation of observing 170) and 112 student teachers in M-DCPS (with an expectation of observing 56), for a total of 226 expected observations.[7]

To measure teacher practice at the end of 2 years of teaching (research question 2), SRI will conduct follow-up observations in spring 2021 with the same teachers selected in fall 2019, plus 114 alt cert teachers in M-DCPS (also randomly selected and observed at baseline, but not a part of the analysis for research question 1). As a conservative estimate, we assume 40% attrition between baseline and follow-up, for a total of 204 observed teachers. Finally, to measure teacher retention for research question 3, the sample will include student teachers of the CTs who become traditionally certified teachers of record in both districts in 2019–20, an estimated 750 teachers (assuming 50 percent hiring rate in the districts) and all Alt Cert teachers hired into M-DCPS in 2019-20, an estimated 505 teachers.

Analysis of NTC effect on teacher outcomes: [8] Researchers will posit MLM with

teacher and school levels. The model is:

$$y_{ij} = \beta_0 + \beta_1(NTC_{ij}) + \beta_k(k^{th}Tchr\ Cov_{ij}) + \beta_l(l^{th}Schl\ Cov_j) + e_{ij} + r_j$$

where *i* is teachers, *j* is schools; Y_{ij} is a teacher outcome; e_{ij} and r_j are teacher and school random

effects. β_1 is the estimated impact of NTC on the teacher outcome.

Power analysis for teacher outcomes: Assuming a total of 226 observed teachers in 151

schools, with 10% of the variance at the school level, and 10% of the variation in the outcomes

explained by covariates, the MDES for teacher practice for research question 1 is 0.365. With the

same assumptions, but assuming a total of 204 observations, the MDES for teacher practice after

2 years (research question 2) is 0.385. Assuming a total of 1,205 teachers in 803 schools, and

assuming 16% of the variance is at the school level, 92% of the variation in outcomes is

explained by teacher covariates, and 31% by school covariates, the MDES for the teacher

retention analyses is 0.08.[9] Using the same assumptions, the MDES for the moderation effect

of teacher type (research question 5) on teacher retention is 0.09 and on teacher practice is 0.68.

Implementation Study: Surveys and interviews will allow researchers to investigate

implementation of the NTC model, provide feedback to NTC, explore the association between

programs features and outcomes, and understand the "business as usual" student teaching and TI

supports in CPS and M-DCPS.

Survey Samples: All new teachers who did their student teaching in the study districts in 2018–

19 (treatment and control) and were hired full time in the districts in 2019–20 will be surveyed in

fall 2019 to understand their student teaching experiences. These teachers, as well as all Alt Cert

teachers (treatment and control) who were hired by M-DCPS in 2019-20 will also be surveyed

after their first year of teaching (spring 2020) and after 2 years of teaching (spring 2021) to

understand the TI supports they received. CTs in 2018–19 (both treatment and control) will be surveyed in spring 2019 to identify the supports they received and the level of coaching the CTs provided to student teachers. It is essential to survey both treatment and control groups to determine treatment-control contrast, i.e., the difference in the supports received by treatment and control teachers. NTC-supported mentors working with treatment teachers will be surveyed in spring 2020 and spring 2021 to inform implementation progress and challenges.

Survey Topics and Scales: For the student teacher, CT, mentor, and beginning teacher surveys, SRI will use existing NTC survey instruments with established reliable scales (Cronbach's alpha of at least 0.8) on topics such as interaction time and focus and perceptions of impact and growth.

Survey Administration: All surveys will be administered by NTC using NTC's secure online survey platforms. SRI will provide support following up with non-respondents.

Survey Analysis: Many scales will be replicated from existing surveys. SRI will check the validity of the replicated scales to ensure that with a different sample, the scales remain reliable (Cronbach's alpha of 0.70 or higher). For any newly developed items, SRI will use factor analysis to create reliable scales. After examining the factor properties, we will use a weighted average to create variables that combine item-level responses into scores for each scale.

District student teaching records and NTC attendance and online coaching log data: For Phase 1, district student teaching records for the 2018–19 school year will provide data on the length, location, and assigned CT of participants' student teaching assignments. NTC records in 2019-20 and 2020-21 will provide data on mentoring participation, frequency, and content for teaching candidates and alt cert teachers participating in Phase 2 (TI supports).

Interviews with key informants: SRI will conduct interviews with a purposive sample of 10 treatment and 10 control CTs in spring 2019 to gather information on the supports CTs receive from NTC and "business as usual" district supports. Interviews with a purposive sample of up to 5 district administrators in each district who oversee teacher recruitment, hiring, and induction in spring 2021 will provide insight into broader district policies. The interviews will offer formative feedback.

Interview Protocols: SRI will develop semi-structured interview protocols aligned to the research questions and tailored to specific respondent types.

Reporting: SRI will provide formative feedback to NTC based on data gathered through observations, surveys, NTC coaching records, and interviews to inform implementation. The final, comprehensive report will integrate findings across data sources, addressing the implementation and impact of Phase 1 and Phase 2. The findings will illuminate promising practices and facilitate model scale up and sustainability.

Years	Program	Evaluation Activities
Oct. 2018- Sept. 2019	Student teaching year	Design refinement, random assignment, instrument development, implementation data collection, formative feedback
Oct. 2019- Sept. 2020	First year of TI support	Interim teacher outcomes, student outcomes data collection, implementation data collection, formative feedback
Oct. 2020- Sept. 2021	Second year of TI	Final teacher outcomes, student outcomes data collection, implementation data collection, formative

	support	feedback, and final reporting	

[1] CPS hires a very small number of Alt Cert teachers each year, so these teachers are not included in this study.

[2] Treatment and control teachers hired into the same school will remain in their original assigned condition. If control teachers in these schools receive support from NTC mentors, we will carry out two analyses: a) an Intent to Treat (ITT) analysis, keeping teachers in their assigned condition, and b) a quasi-experimental Treatment on the Treated (TOT) analysis, where we allow control teachers to change conditions.

[3] M-DCPS schools currently participating in NTC's i3 Scale Up study as treatment schools will be excluded from this study, as will Tier 3 schools.

[4] The student achievement analysis will be affected by student joiners—random assignment will happen for teachers up to a full year before the achievement data are collected and students may join teachers' classrooms after random assignment. Therefore, the student achievement analysis may not be eligible to meet WWC standards without reservations. The study will use prior achievement on the same standardized test as the outcome to establish the baseline equivalence of treatment and control students. If baseline equivalence is established and teacher attrition is low, the study may be eligible to meet WWC standards with reservations.

[5] All power analyses were performed using the PowerUp tool (Dong & Maynard, 2013). The assumptions are based on a study of the NTC induction-only intervention in CPS and Broward County, Florida.

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[7] This high level of attrition may impact the study's WWC rating on teacher practice outcomes, depending on the level of differential attrition. Will investigate options for establishing baseline equivalence if differential attrition exceeds the acceptable threshold. This retains the possibility of meeting WWC standards with reservations, whereas selecting the sample after hiring would introduce bias, putting the analysis in danger of not meeting WWC standards.

[8] The study will not include joiners in the teacher sample. Student teachers will only be included if they are assigned to a CT at the time of random assignment, and alt cert teachers will not have the opportunity to decide where to work based on the treatment status of their school, as the treatment status will either be determined via random assignment after they are hired, or it will be inherited from a traditionally certified study teacher who enters the school at the same time.

[9] The assumptions for the observation and retention analyses are based on a study of the NTC induction-only intervention in CPS.

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