

Absolute Priority 1: Supporting Practices and Strategies for Which There Is Moderate Evidence of Effectiveness.

The coaching approach in this proposal meets the evidence requirement priority based on the findings from two studies reviewed by the What Works Clearinghouse (WWC), Glazerman et al and Clark et al. Both studies meet WWC evidence standards without reservations.

The 2010 Glazerman evaluation of the New Teacher Center (NTC) comprehensive mentoring model fulfills the evidence requirementⁱ (For full evaluation details see Appendix 6: Documentation of Moderate Evidence of Effectiveness). The evaluation applies an RCT (randomized controlled trial) design to assess the impact of NTC's comprehensive strategies and processes for the instructional coaching (IC) of new teachers on several outcomes including student achievement. Similar processes will be assessed in this project with all identified teachers as described below. The WWC single study review of this evaluation determined the study meets WWC evidence standards *without* reservations.ⁱⁱ

Additionally, the study finds a statistically significant favorable impact on student achievement, mathematics and reading, which is a relevant outcome for this current proposal. There are no statistically significant unfavorable impacts on that outcome for relevant populations in the study. The study includes a sample similar to the one proposed in this project: elementary students in metropolitan areas. Furthermore, the Glazerman study was submitted by NTC as meeting evidence standards under the 2012 Investing in Innovation (i3) Validation federal grant, which is currently underway. That award is implementing another RCT of the NTC comprehensive IC model for new teachers.

The second study that provides evidence of the effectiveness of IC practices and

strategies is the Mathematica RCT study of Teach for America (TFA).ⁱⁱⁱ This study assesses the intervention on the mathematics achievement of students in grades 6-12, and finds a statistically significant favorable impact on mathematics achievement, which is an outcome for the proposed study. Additionally, the middle school population overlaps with the sample population proposed for the current study. The WWC single study review was released May 2014 and meets the WWC group design standards without reservations due to authors having established baseline equivalency between treatment and control groups.^{iv}

Similar practices, strategies, and processes between the proposed IC model and the TFA program include specific support on topics common to both NTC IC and TFA, such as classroom management, lesson plans or unit plans, goal setting, analysis of student work, and instructional practices or pedagogy. Additionally, several strategies from TFA's direct teacher support mirror the NTC IC model, including one-on-one coaching support (at a ratio of about 1 to 30 in TFA model; at a ratio not exceeding 1 to 15 in NTC model). As part of this support, coaches provided feedback from classroom observations – also a feature of NTC's IC model. TFA coaches supported teachers through an average of ten structured meetings lasting an average of 70 minutes; the NTC IC model requires weekly, instructionally focused meetings lasting 60-90 minutes for teachers receiving one-on-one support. The TFA model provided small group meetings at a similar frequency to the proposed NTC IC model, which implements small group meetings (professional learning communities) based on teachers' instruction-focused inquiry cycle action plan.^v

In summary, these two rigorous evaluations provide a strong body of evidence that the strategies proposed for this project have shown statistically significant favorable impacts on similar outcomes with similar populations.

Absolute Priority 3: Professional Development for Teachers of Academic Subjects.

Studies show that teaching quality is the most important school-based factor in determining how much a child learns^{vi}, highly effective teachers can get up to “an entire year's worth of additional learning out of their students” compared to less effective peers.^{vii} Further evidence suggests that teachers who receive systematic support and professional development “move” from novice to advanced stages of teaching.^{viii} However, while more than 90% of teachers participate in professional development, few report that it was useful^{ix}, and only 29% of the 1,600 teachers surveyed by Scholastic and the Bill & Melinda Gates Foundation were highly satisfied with current professional development offerings. Too often, teachers receive professional development that is not accompanied by ongoing, systematic support or unrelated to specific, developmental needs of the individual teacher. There is no evidence to suggest that such isolated, one-size-fits-all workshops change teacher practice or affect student achievement.^x Knowing this, NTC and its LEA partners propose to dramatically alter the ways in which teachers are developed by providing practice-changing, job-embedded, personalized professional development for teachers of Academic Subjects through comprehensive instructional coaching (IC) by carefully selected, highly trained, fully released, effective teachers.

Studies show that coaching as a primary means of delivering and reinforcing professional development is effective at changing teacher practice and student achievement.^{xi xii xiii} When professional development introduces a skill in isolation, only 10% transfer it to their practice, as opposed to the 95% of teachers who can transfer the skill when they are coached through the phases of implementation.^{xiv xv} Coached teachers also report they are more likely to use new teaching practices in the future.^{xvi} Emerging research also suggests that effective IC can also lead to gains in student achievement; students whose teachers are coached do better on both state and

local assessments,^{xvii} and increased student literacy achievement correlates to the number of coaching cycles teachers had complete.^{xviii} Students taught by coached teachers achieved higher gains on standardized reading exams than students who are taught by non-coached teachers.^{xix} One study finds that IC leads to improvements in pedagogy, patterns of teacher growth, and changes in classroom organization.^{xx} In summary, IC will increase the likelihood that teachers adopt new teaching practices and use them with a higher degree of quality compared to teachers who are not coached, leading to an association between better instructional practices and more student learning.

Competitive Preference Priority 3: Promoting Science, Technology, Engineering, and Mathematics (STEM) Education

NTC's comprehensive model has proven successful in local education agencies (LEAs) through its long-standing face-to-face programs and its online professional development and mentoring program, e-Mentoring for Student Success (eMSS). For over a decade, eMSS has given thousands of STEM teachers in all 50 states a unique blend of coaching, community and content-specific professional development, focusing on the best practice in teacher development and online learning. A central feature of eMSS is a selection of facilitated, content specific, online professional development modules for teachers, called Explorations.

Under this proposal, in addition to its face-to-face instructional coaching (IC), NTC will provide STEM teachers online, content-specific support through Explorations. Over eight-week periods teachers engage in 30 hours of an ongoing asynchronous dialogue that assists them in planning and preparing a lesson, teaching and assessing that lesson, reflecting on the outcome and analyzing next steps. The easily accessible, anytime, anywhere modules provide teachers the opportunity to delve into content or pedagogy specific to their classroom context and individual

needs. Participating teachers benefit from:

- Individualized content-focused, grade-level support from exemplary K-12 and university based educators; Feedback and guidance around the lesson planning process from grade level content specific coaches and a facilitator ; Personalized instructional support that can be directly applied to the classroom

Explorations are delivered through the NTC Learning Zone, an online portal that provides 24/7 access to programs, tools and resources, and are offered three times a year: fall, winter, spring. Explorations are offered in four categories: STEM, Common Core State Standards, Special Education, and Pedagogy, and modules can be selected based on the practical needs and classroom challenges of teachers. Some topics for the 2014-15 school year include: Incorporating Science and Engineering, Communicating in Mathematics, Using Data in the Science Classroom, Effective Science Labs, Integrating Common Core Literacy in Science, and more. Explorations with a science focus are aligned with Next Generation Science Standards.

Explorations are designed within the research base of The Center for Public Education.^{xxi} Explorations are also based on research pointing to several components of good online professional development, including a theoretical framework,^{xxii} structured communities of practice,^{xxiii} and facilitation.^{xxiv}

Competitive Preference Priority 4: Supporting High-Need Students.

NTC's partner LEAs are chosen because their student populations include large numbers of high-needs students. In each LEA the percent of students identified as qualifying for free or reduced lunch exceeds both the state and national average.

| | Volusia County Public Schools (Volusia CPS) | Austin Independent School District (Austin ISD) |
|---------------------------------|---|---|
| # Students | 62,306 ^{xxv} | 84,591 ^{xxvi} |
| Student Demographics | Hispanic: 16.3% African America: 13.9% White: 59.1% Asian: 1.73% ^{xxvii} | Hispanic: 59.5% African American: 8% White: 25.9% Other: 6.6% ^{xxviii} |
| Graduation Rate | District: 70.6% ^{xxix} At Risk Students: 41% | District: 82.5% ^{xxx} |
| % Free and Reduced Lunch | 61% ^{xxxix} *51 schools (including charter and alternatives) receive Title I funds ^{xxxii} | 61% *59.7% of students are economically disadvantaged, with 18.9% living below poverty level ^{xxxiii} |
| # Schools | 89 | 129 ^{xxxiv} |
| # Teachers | 5,074 ^{xxxv} | 6,369 ^{xxxvi} |

A. Significance:

(1) The significance of the proposed project on a National Level.

NTC’s partner LEAs are chosen for their student enrollments that include large numbers of high-needs students as well as their regional diversity, program readiness, and current teacher effectiveness measures. Not only will the grant affect at least 92,000 students, and because the LEAs represent Florida and Texas, key states for national education policy, the coaching will receive prominent exposure in important U.S. regions over the three-year grant term.

Additionally, as LEAs move away from one time professional development to deep, job embedded support, demonstrating the success and significance of this model in two states with national influence is an important investment for DOE, the LEAs and New Teacher Center. Over the course of the two years of treatment, NTC expects to reach the following numbers of schools,

coaches, teachers, students, and high needs students each year. Note there will be considerable overlap in the students supported each year.¹

| District | Schools | Coaches | Teacher (~24/school) | Students (~782/school) | High Need Students (%FRL) |
|-----------------|----------------------------------|----------------|-----------------------------|-------------------------------|----------------------------------|
| Volusia CPS | 22 Elementary 7 Middle School | 29 | 643 | 21,500 | 13,115 |
| Austin ISD | 25 Elementary 5 Middle School | 30 | 747 | 24,610 | 15,061 |
| TOTAL | 59 | 59 | 1,389 | 46,110 | 28,176 |

In year three, delayed treatment schools will be added to the implementation, meaning the reach numbers will grow to:

| District | Schools | Coaches | Teacher (~23/school) | Students (~775/school) | High Need Students (%FRL) |
|-----------------|-----------------------------------|----------------|-----------------------------|-------------------------------|----------------------------------|
| Volusia CPS | 45 Elementary 14 Middle School | 59 | 1,357 | 45,725 | 27,892 |
| Austin ISD | 50 Elementary 10 Middle School | 60 | 1,380 | 46,500 | 28,365 |
| TOTAL* | 119 | 119 | 2,737 | 92,225 | 56,257 |

*Numbers vary to due to rounding and the different number of students at the elementary and middle school levels.

In summary, across the three-year grant, NTC will support approximately, 2,700 teachers and 92,000 students through this grant effort.

NTC has a national reputation for high-quality programmatic work. In 2014-2015 NTC served 6,696 coaches/mentors, nearly 26,000 teachers, 2,000 principals, and 1.8 million students indicating readiness to scale-up and meet whatever level of interest arises, regionally or

¹ These counts are based on the number of students at each LEA at each level, assuming 25 students per elementary teacher and 100 students per middle school teacher. The treatment group will include about half the elementary and middle schools at each school level in each LEA. Teacher and student ratios per school were derived from these assumptions.

nationally. NTC currently partners in high need urban districts such as Los Angeles, Chicago, and Tampa (and our two LEA partners for this grant: Austin ISD and Volusia CPS); and partners with rural districts in Iowa and Wisconsin. Additionally, NTC has launched several massive open online courses (MOOCs) in partnership with Coursera that had 78,000 participants in 2013-14, and has offices in Boston, New York, Durham, Chicago, San Francisco, Los Angeles, Hawaii, as well as our headquarters in Santa Cruz, CA.

(2) The potential contribution of the proposed project to the development and advancement of teacher and school leadership theory, knowledge, and practices.

More than ever, districts rely on IC to develop their teaching force through an aligned approach to professional learning and instructional practice.^{xxxvii} Several large districts² have recently implemented IC programs.^{xxxviii} However, the Gates report referenced above shows that the majority of IC is focused on new and struggling teachers. Given the recent study showing a teacher's ability to increase their students' achievement persists well after their first three to five years in the classroom,^{xxxix} and given recent adoptions of new student learning standards by over 80% of the states, it seems important that all teachers have access to IC to maximize their effectiveness. When building its IC model, NTC reviewed research surrounding IC methods and found that IC is highly variable, resulting in a lack of empirical research around effective models to guide local implementation.^{xl} NTC's model is, therefore, built around filling gaps in the research around the following important variable areas in IC's effect on teacher practice and student learning:

- The effect of interaction time between coaches and teachers
- The effect of different coaching models
- The effect of professional development of coaches

² including New York, Los Angeles, Philadelphia, and others

Interaction time: There is a great range in IC practices and many accounts in the literature are not explicit about exactly how often and long coaches work with teachers. This is troublesome, as it is only sustained and intense coaching that is likely to transform teaching practices and student learning.^{xli xlii} Knight and Guiney describe programs where coaches meet with teachers weekly, but the length and duration of time are not specified.^{xliii} These gaps in the research around the effect of interaction time between coaches and teachers provide this study an opportunity to determine the best practice amounts of time for coaches to spend with teachers, either individually or in professional learning communities.

Different Coaching Models: If IC is going to better influence teaching practice it is essential that coaches have clarity around their role and expectations associated with that role; and use research-backed, best IC practices. Currently, there is no firm, commonly-held definition of what an instructional coach does nor which activities best advance teacher practice and student learning. Some coaching practices may focus more on consultation or creating a more collaborative school culture rather than directly confronting a specific problem such as low reading scores^{xliv} or systematically focusing on an individual teacher's instructional practice over time. There is also great diversity regarding how an instructional coach allocates their time, be it working with teachers, leading workshops, writing curriculum, facilitating teams, doing administrative work, etc. NTC's IC model is explicit and clear that the role of the coach is to provide instructionally-focused support to teachers, either one-on-one or in professional learning communities and this proposal will test multiple IC structures and practices for working with teachers in the same location. Additionally, the proposed implementation is intentionally aligned with existing coaching efforts in the partner LEAs to create coherence across the system. This will provide much needed guidance to the national field of IC on how various models affect

teaching practice and student achievement.

Intensive IC training and support: Many teachers who transition into the role of a full-time instructional coach may have little to no experience teaching their peers, and effective, ongoing, targeted and robust professional development is essential for their success as coaches. Several studies suggest that effective coaches need strong communication and interpersonal skills^{xlv} as well as the ability to diagnose teacher needs.^{xlvi} However, many coaches do not receive support, and there is little research available on the effectiveness of professional development for coaches or the best ways to identify, hire, and support coaches as they work. In the few studies of IC that measure changes in teacher practice and student learning, the treatment often varies by setting, time allocation, the coaching model being implemented, and varying degrees of professional development.^{xlvii} This study will show exactly how important high-quality, research-based professional development is for coaches to be successful and will articulate exactly what that support looks like.

(3) The importance or magnitude of the results or outcomes likely to be attained by the proposed project, especially improvements in teaching and student achievement.

NTC proposes a well-designed RCT study, described in Section E. By looking at several different coaching models in two districts, this study will be able to determine which coaching practices provide the greatest leverage improving teacher effectiveness and student achievement and what professional development coaches need to be successful. For our three outcomes of this study: student achievement, teacher practice, and teacher attitudes, the power analyses are as follows:

Power analysis for student outcomes. The minimum detectable effect size (MDES) is 0.12, assuming an average of 650 students per school;³ that 10% of the variation in student test

³ Assuming 350 students per school and 15% of the students not included in the analysis due to missing values.
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scores lies in the school level; that student pretest score and other covariates explain 50% of the between-school variation; and that there are about 77,350 fourth- through eighth-grade students with reading or math scores in 119 schools.

Power analysis for teacher outcomes. Teacher practice - Assuming a total of 300 observed teachers, half treatment and half delayed treatment (See Section E for sampling techniques and sizes), and assuming 15% of the variation in the outcomes is explained by teacher and school covariates, the observation analysis will be able to detect a MDES of 0.32. Teacher attitudes - Assuming a total of 2,780 surveyed teachers, with an 80% response rate (approximately 19 respondents per school), half treatment and half delayed treatment, and assuming 15% of the variation in the outcomes is explained by teacher and school covariates, the survey analysis will be able to detect an MDES of 0.14.⁴

B. Quality of the Project Design and Services:

(1) The extent to which the goals, objectives, and outcomes to be achieved by the proposed project are clearly specified, aligned, and measurable.

The goals, objectives and outcomes for this proposal are:

*Goal 1: Measurably increase the effectiveness of participating teachers by the end of the grant period. Effectiveness will be assessed through teacher practice and student achievement.*⁵

Objective 1 of Goal 1: After one year of support, treatment teachers will on average show improved instructional practice compared to delayed treatment teachers at a level of statistical significance. This comparison will be assessed using an observation instrument.

⁴ These assumptions are based on empirical data culled from other studies of classroom observation and teacher survey.

⁵ A growing body of research demonstrates that LEA evaluation scores are problematic. See for example Dee, T. S. and Keys, B. J., (2004). Does Merit Pay Reward Good Teachers? Evidence from a Randomized Experiment. *Journal of Policy Analysis and Management*, 23 no. 3: 471. Districts often do not have the capacity to invest in interrater reliability; therefore, scores from observation are not reliable. Additionally, the scores do not tend to differentiate teachers so that the vast majority of teachers are rated proficient or satisfactory.

Objective 2 of Goal 1: By the end of one year of coaching support, students whose teachers received NTC coaching support will on average perform higher than students whose teachers did not receive NTC coaching support on the developmental scale score of their state's standardized achievement test in reading and mathematics, grades 4-8.

- **Outcome of Objective 1, Goal 1:** Treatment teachers' instructional effectiveness will be higher than delayed treatment teachers.
- **Outcome of Objective 2, Goal 1:** Students of treatment teachers will perform better than students of delayed treatment teachers.

Goal 2: Measurably increase the intensity and instructional focus of coaching support received by treatment teachers compared to delayed treatment teachers.

Objective of Goal 2: The percentage of treatment teachers who report a more intensive and instructionally focused coaching experience will exceed that of delayed treatment teachers at a level of statistical significance. This rating will be based on teacher survey data.

- **Outcome Goal 2:** Treatment teachers will have a more intensive and instructionally focused coaching experience compared to delayed treatment teachers.

Goal 3: Measurably increase the academic press (attitudes, instructional practices, efficacy) and growth mindset of treatment teachers compared to delayed treatment teachers.

Objective of Goal 3: The percentage of treatment teachers who report classrooms with more academic press and teachers with more of a growth mindset will exceed that of delayed treatment teachers at a level of statistical significance. This rating will be based on teacher survey data.

- **Outcome Goal 3:** Treatment teachers will have a more of a growth mindset and

classrooms with more academic press compared to delayed treatment teachers.

Goal 4: Build capacity in LEA partners to fully implement, execute and sustain a comprehensive coaching-based, teacher professional development program after the grant period ends.

Objectives of Goal 4:

1. Participating mentors, teachers, and partners will commit to all elements of NTC’s coaching program as described in this proposal, the aim of which is to increase the number of highly effective teachers, thereby raising student achievement.
 2. All partners will organize and participate in facilitated communities of practice; this ongoing supportive communication will encourage LEA partners to collaborate in solving problems and add innovations to their teacher development reform programs.
 3. All partners will commit to sustainability by providing funding for fully-released coaches, collaborating in the delivery of high quality coach, teacher, and school leader professional development, and gathering and analyzing data of program impact.
- **Outcome Goal 4:** LEA sites will have sustainability plans with key indicators met by grant’s end.

(2) The extent to which the proposed project is part of a comprehensive effort to improve teaching and learning and support rigorous academic standards for students.

Comprehensive Strategy to Improve Teaching and Learning: NTC’s unique data-driven and standards-based program is rooted in the goals delineated above and is designed to meet the objectives. It responds to the critical need to increase the number of effective teachers of academic subjects and retain them in the schools where they are most needed. We choose to address this important issue because the quality of a child’s teacher is the most important school-based factor in determining how much that child learns.^{xlviii} In addition, NTC brings over 17

years of data, research, and successful program experience to these IC partnerships. Supported by strong collaborative structures between NTC and the LEAs, and guided by a persistent, abiding focus on improved instructional practice and student learning, the program will result in increased student achievement and better teacher practice – outcomes that correspond to those of dozens of highly effective NTC programs already in existence across the country. To support rigorous academic standards (Florida Standards and Texas Essential Knowledge and Skills) and improvement for students, NTC will implement a comprehensive IC program that includes:

1. LEA partners who are committed to the NTC model for teacher development and have also demonstrated commitment to coaching as a key lever for professionally developing all teachers, especially those who teach academic subjects
2. Program design, technical assistance, and capacity building for LEA program leaders to ensure effective replication of NTC’s proven comprehensive IC model
3. Rigorous selection of full release instructional coaches based on NTC best practice
4. High quality, comprehensive, and multi-year professional learning for instructional coaches and school leaders; professional learning communities for instructional coaches; online content-focused professional development for STEM teachers;
5. Formative assessment tools and protocols to both support and document instructional coaching, delivered via NTC’s online Learning Zone

1. Committed Partner LEAs: The selection of the partner LEAs help to ensure that the program achieves its results. LEAs and NTC will co-establish and sign a formal MOU defining the scope of the partnership and outlining agreements to provide the fundamental supports, dedicated resources, as well as commitments over time to the endeavor. This project will be implemented in a mixture of affluent and high poverty schools, high performing and struggling

schools, and ethnic and culturally diverse sites. LEA partners represent a diversity of schools in both large urban cities and more suburban areas where the majority of U.S. public school students reside.^{xlix} Therefore, the initiative will create a model for scale-up and replication in any district, regardless of its demographic makeup.

Austin Independent School District: Located in Central Texas, Austin ISD is an example of a LEA that is continuing to make strategic decisions that increase their expectations around accelerating student achievement and teacher effectiveness. With 84 elementary schools, 18 middle, and 16 high schools, Austin ISD is the 5th largest district in Texas. Austin ISD has partnered with NTC since 2008 to provide comprehensive induction support to first and second year teachers. Coaching is central to their efforts to provide cohesive and coherent support for teachers and schools (campuses), as demonstrated through these areas of focus described in their strategic plan:

| | |
|-----------------|--|
| AISD Strategy 1 | Provide a high-quality, well-rounded educational experience to all students that is rigorous, culturally relevant, healthful, and engaging. |
| 1.2 | <ul style="list-style-type: none"> Examine the district’s curriculum to ensure college ready rigor at each grade level, clear expectations for teaching and learning, instructional supports to meet the needs of all students, and implementation with fidelity. |
| AISD Strategy 3 | Ensure that every classroom has a high-quality, effective educator, supported by high quality, effective administrators and support staff. |
| 3.3 | <ul style="list-style-type: none"> Develop and implement a coherent, content-focused, best-practices plan for professional development of instructional leaders, support staff, and teachers. |
| 3.4 | <ul style="list-style-type: none"> Enhance quality and access to professional development in using data and feedback to inform instruction, and to meet the needs of ELs and Special Education students in the least restrictive environment. |
| 3.5 | <ul style="list-style-type: none"> Expand and accelerate development of campus-based professional learning communities.^{li} |

Volusia County Public Schools: Located on the east coast of Florida, Volusia CPS is in a period of both transition and resurgence. After years of exceptional academic performance as measured by Florida's Accountability System, Volusia CPS experienced a decline moving from a B to a C district. As the 13th largest district in the State of Florida, the district is comprised of 45 elementary schools, 12 middle schools, nine high schools, two combination schools (K-8 and 6-12), 13 alternative or special centers, and eight charter schools. Similar to most of the state, Volusia's economy suffered significantly during the recent economic downturn. Declining student enrollment, increase in students in poverty and homeless environments (10% increase in four years), combined with decreased revenue, required the district to make hard decisions in order to continue prioritizing funding for student instruction.

In order to keep the focus on improving student achievement, the district conducted a strategic analysis of data and resources, that resulted in the creation and implementation of a strategic multi-tiered support system focused on high-leverage investments in accelerating teacher practice. Since school year 2011-12, Volusia CPS and NTC have partnered around providing high quality mentor support to Peer Assistance and Review (PAR) mentors who are charged with supporting first year teachers. This partnership was born out of the collective goal of accelerating the development of new teachers, increasing teacher retention, raising the quality of teacher leadership, and improving student learning. In 2014, a partnership between Volusia CPS, NTC, Stetson University, and Bethune-Cookman University was awarded a multi-year grant from the Florida Department of Education to support transforming teacher preparation and clinical experiences for prospective new teachers. This partnership represents a commitment by all parties to back-map support for teacher development and provide the type of high quality support they will receive during induction, during pre-service. This proposal to support Volusia

CPS's IC efforts represents the next step in extending the through-line of high quality coaching professional development beyond the first two years. The collective goals are to make Volusia CPS a desirable place for teachers to teach, especially those in hard to staff areas, because of the coherent, consistent, and comprehensive support district teachers receive throughout their career.

2. Implementation Support Provided by NTC to LEA Partners: Implementation of the model begins with a pre-assessment of the LEA's human capital continuum. Special focus is placed on teacher placement practices, current teacher retention rates, and assessment of district resources that can support full release coaching including a collaborative appraisal of the district's current use of full-time professional support staff. NTC analyzes existing coach, teacher, and principal professional development and school-level conditions for teacher and leadership development with an eye on the maximum effect on learning per dollar invested. This thorough pre-assessment allows NTC and participating LEAs to collaboratively customize the program and support the development of the local expertise required to sustain a robust coaching program as part of long-term efforts to maximize student achievement. NTC provides supports around the development of local communications collateral and needed change management to ensure successful transitions to new practices, roles, expectations, and structures congruent with the new IC model.

In support of Goal 4, (district capacity-building), NTC and its LEA partners will develop an MOU and an action plan with specific aims—aligned to this project's goals and objectives—supporting each LEA's intention to implement, expand and sustain their coaching programs and promote comprehensive teacher effectiveness reform. In addition, the LEA IC program leadership team will participate in the NTC National Teacher Coaching Network (NTCN). LEA program leaders will benefit from a virtual as well as a physical community of practice with 23

other NTCN member districts who are currently partnering with NTC on high-quality IC program implementation. NTCN and NTIN (National Teacher Induction Network) are long-standing hallmarks of NTC's support to partnering LEAs and foster program discipline, fidelity, and continuous improvement. LEAs will showcase their strengths, build relationships, share strategies for increasing program effectiveness and measuring impact, and consider the implications of program practices while articulating steps towards program goals.

Self-Sustaining LEA Programs: NTC will also provide direct technical assistance to partner LEAs on implementing the coaching model within their own contexts. Locally-delivered and tailored professional development including Coach Professional Learning Series (PLS) and Coach Forums are presented by NTC in collaboration with the LEAs. This collaboration aims to certify the LEAs to conduct many of these events on their own at the end of three years.

Additionally, after NTC helps initiate the data gathering and analysis that are required to assess program quality with rigor, the LEAs will be prepared to continue that process independently.

NTC also works with the LEAs to advocate effectively with school boards and other stakeholders for continued investment in high quality IC induction programs. that are appropriately differentiated to support new and experienced teachers. NTC assists in writing project reports and press releases, as well as grant proposals and briefings for potential funders who might assist with continued program funding.

3. Coach Selection and Assignment: During the pre-implementation phase, NTC works with LEAs to select full-release coaches whose primary role is to work one-on-one or in small groups with teachers of academic subjects to increase their instructional effectiveness. NTC sets high standards for instructional coach performance; it will work with program leaders to

implement a rigorous process to identify, recruit, develop, and retain candidates from among the most effective teachers in the LEAs. The selection of coaches involves a multi-tiered, standards-based protocol involving resume screenings, phone interviews focused on the analysis of a classroom teaching video to determine instructional knowledge and coaching potential, and a face-to-face panel interview consisting of a scenario-based writing sample, questions that incorporate coaching role play and sample teaching lesson, and a written reflection.

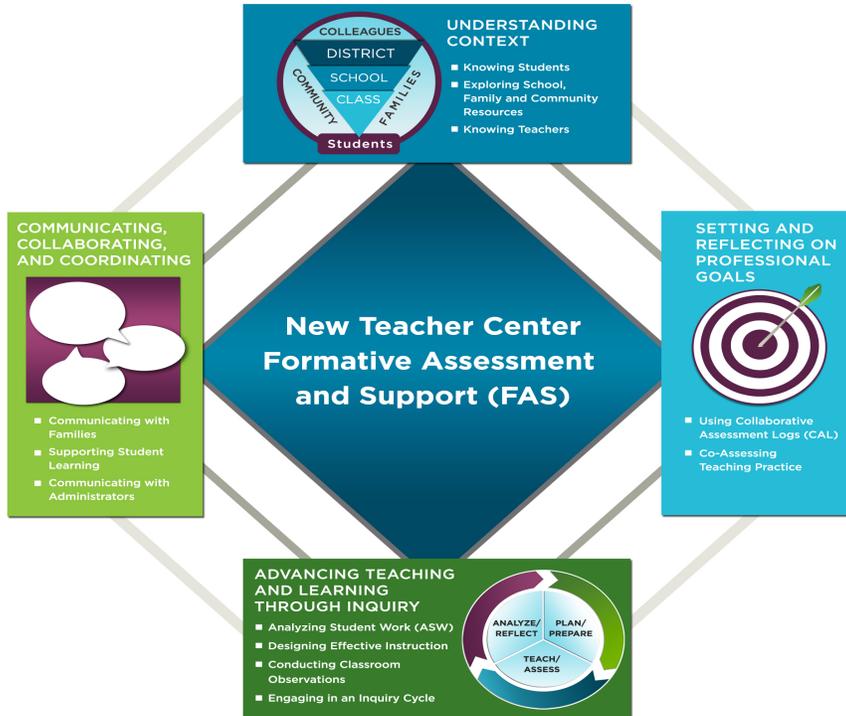
Successful coaches are then deployed at the school level to serve teachers of academic subjects in a clearly defined, content specific, coherent, and aligned tiered model:

- **Tier 1 coaching** is designed for, teachers who are new to their content, teachers whose students are identified as at risk for educational failure based on student assessment data data, and teachers in years one through three who are not already receiving two years of high quality induction support. Teachers in this tier will benefit from one-on-one coaching for an entire school year. Working with their coach for a minimum of 60 minutes per week, each teacher receives 40 hours of direct, personalized professional development each year.
- **Tier 2 coaching** is designed for teachers who are new to their grade level, new to the school, or interested in improving an area of their practice. Teachers in this tier will benefit from one-on-one coaching for an entire semester. Working with their coach for a minimum of 60 minutes per week, each teacher in this tier will benefit from 20 hours of direct, personalized professional development each year.
- **Tier 3 coaching** is designed for teams of teachers working in the same grade level or content. Teachers in this tier will benefit from a professional learning community and team coaching for an entire quarter. Teachers in Tier 3 may simultaneously receive Tier 2 or Tier 1 coaching. Working with each group for a minimum of 60 minutes per week, each PLC

team will benefit from 10 hours per quarter of professional development from their coach and PLC peers.

4. Professional Development for Coaches, Principals, and Teachers. Please see section *B.3* for a description of NTC’s professional development.

5. NTC’s Formative Assessment and Support System (FAS): Coach-teacher interactions, whether one-on-one or in facilitated PLCs are shaped by NTC’s FAS, a unique, strategic, research-based series of high impact collaborative tools and processes focused on advancing teaching practice and student learning. Aligned with locally-adopted professional teaching standards, state-adopted student standards, and LEA goals, FAS guides the work of the ICs and provides the foundation for accelerating the development of teacher practice. FAS includes structured protocols, conversation guides, strategies, data collection tools, and resources that provide support tailored to an individual teacher’s assessed needs. FAS supports teacher practices that research has shown to significantly advance student learning and provide a lens into teacher growth throughout the coaching cycle.



Coaches use FAS, accessed via the online NTC Learning Zone, to analyze, assess, and document their work with teachers. The Learning Zone houses online versions of the NTC FAS tools, allowing coaches and teachers to keep coaching and observational data organized and secure. This organizational facet of the online tools makes coach-teacher meetings more fruitful; coaches’ efforts can be better targeted since both student and teacher growth trends are clearly delineated over time. The Learning Zone further enables teachers and coaches to upload *and annotate* observational videos of their practice for viewing and discussion either in their one-on-one interactions with the IC (Tiers 1 and 2) or within the small group IC-facilitated PLC (Tier 3).

(3) The extent to which the training or professional development services to be provided by the proposed project will be of sufficient quality, intensity, and duration to lead to improvements in practice among the recipients of those services.

NTC proposes to transform professional development for teachers of academic subjects by focusing on the development of highly effective instructional coaches to work both one-on-one

and in small groups with teachers for a minimum of one semester. Because coaches are the primary agent for the professional development of participating teachers, it is essential that they receive high quality professional development to build their skills around effective coaching and group facilitation. Once selected, coaches begin receiving intensive professional development through a two-year program of NTC Coach Academies and bi-monthly Coach Forums. Coaches also participate in a parallel process of peer coaching to accelerate the development of their IC practice and receive in-the-field shadowing and co-observation opportunities for on-going learning. On average, coaches receive 100 hours of training per year in the NTC model.

Coach PLS Series: This is a sequenced and recursive curriculum of IC professional development that supports a coach through the development of comprehensive coaching knowledge and skills using FAS while building a community of learners who support each other's growth as a professional coach. Each Academy session has a specific focus to gradually build the learning and development of the coaches' abilities to advance teachers' practice; particular focus is given to adult learning needs and effective strategies; strategic and consistent use of both professional and student standards; the social-emotional needs of learners (both teachers and students). Academies also promote the collection and analysis of field-based data of teacher practice and student learning. The Academy series consists of four, two-day sessions during both Years 1 and 2, with coaches receiving 56 hours of direct professional development support each year. Areas of focus during the professional development include:

Year 1 Curriculum

- ***Using Formative Assessment in IC Practice:*** Employing the roles, language, and stances for effective IC; Building collaborative, trusting relationships with and among teachers; Using IC protocols/tools to assess and advance teaching practice; using professional

standards to anchor practice; Practice strategies for coaching in complex situations

- ***Effective Instructional Coaching Cycles:*** Analyzing coaching experiences to problem-solve and inform practice; Extending and practicing IC language and strategies; Using protocols/ tools that support effective observation cycles; focused on teaching practice and student learning; communicating, collaborating, and coordinating with administrators and colleagues to support coaching outcomes
- ***Analyzing Student Work to Inform Differentiated Instruction:*** Analyzing student work (individual and small group) to determine student strengths, areas for growth, and instructional next steps; Planning differentiated instruction; Exploring social-emotional learning needs, including how the brain reacts to stress; Building resilience through coaching language
- ***Supporting Effective Instruction:*** Using protocols and tools to plan standards-based lessons and units; Supporting teacher practice through co-planning and co-teaching; Providing effective feedback

Year 2 Curriculum

- ***Coaching and Facilitating Learning Communities:*** Coaching and facilitating effective groups; Developing collaborative teams; Exploring possibilities for collective inquiry
- ***Coaching in Complex Situations:*** Coaching for Social and Emotional Learning competencies: resiliency, empathy, and pro-social behavior; Applying response behaviors congruent with identified needs of a group or individual; Using entry points and language to surface issues of concern; Exploring coaching tensions
- ***Designing and Presenting Professional Development:*** Understanding how adults learn; Applying principles of designing and delivering effective professional learning;

Differentiating adult learning experiences

- **Coaching as Leadership:** Understanding the qualities of transformational leadership; Exploring the role of coach as change agent; Applying systematic thinking to coaching practice; Synthesizing learning

Instructional Coaches also engage in an NTC-lead, four-hour community of learning twice per month, called a **Coach Forum**. Through participation in these additional 64 hours of professional learning, coaches continue to expand their skills and knowledge of best practices for teacher development. These facilitated forums: 1) create a collaborative community of practice for coaches, supporting each coach's emerging leadership; 2) deepen coach skills and advance a high standard of program implementation; 3) provide for coach accountability in a supportive environment; and 4) encourage sharing and analysis of data to track program impact and suggests constructive interventions.

Inquiry Cycles: Partner LEAs, their coaches, and teachers use the online FAS tools to focus teachers' attention on collecting and analyzing student work to refine instruction to meet students' differentiated needs. This continuous inquiry cycle, employed in all Tiers of coaching, ensures that teachers regularly assess the growth of *every* student, including those research shows are often overlooked. For example, a coach and teacher may have analyzed student math performance tasks together and determined that EL are performing far below their native English-speaking peers. Together, they identify two high-leverage goals: develop students' mathematical understanding and students' academic language to ensure that English Language Learners become proficient in mathematical procedures and algorithms as well as being able to communicate their thinking. During the IC cycle of pre-observation meeting, collecting data during a strategically-focused classroom observation, and debrief meetings, the IC and teacher

determined a few, actionable, high-leverage structures or strategies to meet the identified goals such as including heterogeneous group work to provide strong English models, using drawings, diagrams, and graphic organizers, or explicit teacher modeling of and prompting for academic language

Coach Assessment and Leadership: Instructional coaches engage in a parallel formative assessment of their own growing skills using a continuum of coach development based on a set of IC professional standards, a goal-setting process (with mid-year review and end-of-year reflections), a peer coaching process, and data collection. Coaches work directly with a Lead Coach who facilitates this formative learning process that also includes observation of coaching conversations and feedback, and analysis of FAS data from IC-teacher interactions. The process builds the skills and capacity of a cadre of instruction-focused teacher leaders who demonstrate the ability to move adult practice forward. After approximately three years, coaches gain the expertise to return to the classroom as more highly effective teachers or accept a leadership position in their LEAs. Data from Hillsborough County Public Schools demonstrate that five years into implementation of an NTC teacher induction model with full-release mentors who rotate back to the classroom after three years, 93% of NTC-trained mentor/coaches are serving in the district in classroom, other coaching/ teacher leadership, or administrative positions.

Supporting Principals: NTC recognizes the essential role that support from administrators plays in teacher effectiveness and retention, and works to expand the capacity of principals to support instructional coaching in their schools and the development of high quality teacher practice.^{lii} NTC works with principals using formative supervision practices and research-based tools and protocols that are aligned to the locally-adopted evaluation framework

and designed to support principals in providing evidence-based feedback that enhances teacher growth. . NTC will present two professional development modules for site administrators: “Improving Student Achievement Through Teacher Observation and Feedback” and “The Role of the Principal in Supporting High-Quality Coaching.” They develop principals’ capacity to work with teachers to advance their instructional practice through formative observation strategies and developmentally-appropriate, focused feedback. Principals benefit from 11 hours of professional development, designed to help develop permanent leadership capacity within the LEA and to foster collaboration between ICs, teachers, and administration.

Teacher Professional Development (PD): As described in Competitive Preference Priority 3, in addition to its face-to-face instructional coaching, NTC will provide STEM teachers small group and one-on-one online, content-specific support through participation in Explorations. Over an eight-week period, teachers, coaches, and a facilitator engage in an ongoing asynchronous dialogue that assists new teachers in planning and preparing a lesson, teaching and assessing that lesson, reflecting on the outcome and analyzing next steps. Teachers spend about 30 hours total on an Exploration, which includes implementation in the classroom, receiving individualized support on effective lesson planning, and implementation around the topic they have selected, customized for a teacher’s particular grade level and need.

(4) The extent to which the proposed project will prepare personnel for fields in which shortages have been demonstrated.

High teacher turnover is the primary cause of poor school performance, which is particularly striking in schools with more low-performing students.^{liii} In addition, there is a shortage of teachers in key content areas such as science, math, and special education and a need to recruit and retain new teachers in these key areas. A 2007 Carnegie Foundation commission of distinguished researchers and public private leaders maintains that the nation’s capacity to

innovate for economic growth and the ability of American workers to thrive in the modern workforce depend on a broad foundation of math and science learning. However, approximately one third of urban public schools with high poverty and minority populations have difficulty retaining math and science teachers.^{liv}

In Volusia CPS, 600 new teachers were hired this past school year. The district uses Title II funds to assist in the recruitment of those teachers and pays for certification exams in those high need areas. They currently participate in a program with the University of Central Florida to recruit math and science non-education graduates into teaching.

In Austin ISD, 800 teachers were hired this past year, with similar vacancies in STEM and Special Education that have been reported nationally. As part of their Strategic Plan referenced in Section B-2, the district has a specific foci around attracting, hiring and retaining high quality and diverse teachers and uses both their Teacher Incentive Funds and other strategic compensation efforts to attract candidates.

Research indicates that poor retention rates of STEM teachers is due to the low retention rates of critically important subject matter experts and role models.^{lv} The problem of a shortage of high-quality teachers with experience is going to increase due to the decrease in enrollment in teacher training programs across the country which are down 10% from 2004-2012^{lvi}

According to the U.S. Department of Education, approximately 300,000 new teachers enter the classroom each year, and nearly 50% will quit within five years, leaving the most common teacher (often assigned to low-income schools) with less than two years of experience.^{lvii lviii} NTC has worked since 1998 to respond to the critical need to increase and retain the number of effective teachers in the schools where they are most needed. Research has found that teachers are “less likely to leave the profession if they are provided with a coach or

mentor in their content area and if they participate in formal planning and collaboration with other teachers.”^{lix lx} Providing high-quality instructional coaching to schools throughout Volusia CPS and Austin ISD will not only help districts to increase teacher retention and to continue to build a community of teacher leaders, but the study will serve as a model to scale to other districts to help retain more high-quality teachers.

(5) The extent to which the proposed project will focus on serving or otherwise addressing the needs of disadvantaged individuals.

As stated previously, 61% of the students in Volusia CPS are identified to receive a Free or Reduced Lunch rate, and 51 schools receive Title I funding. In Austin ISD, 61% of students qualify for a Free or Reduced lunch rate, and 60% of students are economically disadvantaged, with 19% living below the poverty level. Through this project, NTC and its two partners will reach approximately 92,000 students and 56,257 high-need students through coaching programs over the three years of the project. This project will serve the needs of disadvantaged students in our partner LEAs by increasing the student achievement of students in these districts, thereby effectively narrowing the achievement gap. These higher levels of student achievement will result in student populations that are more college and career ready.

NTC will increase student achievement by measurably increasing the effectiveness and growth of teachers, the intensity and instructional focus of coaching support, and the capacity of our LEA partners to implement and sustain this important work. By building a strong pool of teacher leaders and potential new principals that permanently reside in their district, this project also addresses the needs of future disadvantaged students who will also benefit from the project.

As this project will create a model for scale-up and replication in any district, due to the diversity of the LEA partners, disadvantaged students across the country could be served by scaling our instructional coaching model across the country.

C. Quality of the Management Plan and Personnel

(1) The qualifications, including relevant training and experience, of the project director, key project personnel, and project consultants or subcontractors.

NTC and its partners bring a wealth of expertise in education and have a dedicated group of educational leaders and managers to execute its SEED project. The SEED management team has proven their ability to manage a series of complex educational projects and programs, including two other federal grants. Under the leadership and vision of a highly dedicated CEO, Ellen Moir, whose resume is attached, NTC is confident in its ability to manage the complexities of the SEED grant. NTC proposes the following key roles based on our past experience implementing federal grants of this scale. Outside of SRI International providing the evaluation, NTC will not be using sub-contractors and all project staff are employees of NTC.

- **Project Director** oversees the strategic implementation of the work and manages the staff implementing the project. The Project Director works with LEAs on scope and services, and implementation issues. She co-facilitates the community of practice. This position convenes and leads the SEED Management Council and has ultimate responsibility and authority over the project. The **Project Director** will be NTC Executive Vice President Cynthia Brunswick EdD, who oversees NTC's work in high profile LEAs such as Hillsborough County Public Schools, Broward County Public Schools, New York City Department of Education, Tulsa Public Schools, Los Angeles Public Schools, Austin ISD, Minneapolis Public Schools, and Volusia CPS. She is the current Project Director for NTC's i3 Validation and SEED awards.
- The **Project Finance Director** oversees the business and operations aspects of the project, administers the funds that are passed through to the LEAs and manages the relationship with DoE. The **Project Finance Director** will be NTC's Director of Finance, Justin Rall who has been overseeing NTC's existing federal grants since 2012.

- **Senior Director of Impact** conducts internal program evaluation and oversees LEA impact data analysis process and personnel. The DOI is the liaison with the SRI International evaluators. The **Senior Director of Impact** will be Ali Picucci, PhD who oversees NTC's current SEED and i3 Validation studies as well as overseeing research to improve NTC products and services. She has 15 years of experience in educational research and program evaluation and four years of experience as a public school teacher in secondary schools.
- **Evaluation Co-Principal Investigators (PIs) from SRI International** oversee the external evaluation, monitor detailed work plans and budgets related to the external evaluation, present detailed analysis of program efficacy. The **Evaluation Co-PIs** will be Drs. Haiwen Wang and Viki Young. Dr. Wang has expertise designing and executing experimental and quasi-experimental studies, including RCTs for studies of NTC's i3 validation grant, the Florida Master Teacher Initiative (i3), the National Writing Project, and reclassification of English language learners. Dr. Young, an expert in human capital strategy and district policy, was PI for the study of the Rio Grande Valley Center for Teaching and Leading Excellence (i3) and for a study of the Human Resources Pilot, a Massachusetts initiative under Race to the Top, and is on the core leadership team for the NTC i3 study.
- **Impact Analyst** supports SRI, LEAs, and NTC with data gathering and reporting and will be charged with monitoring ongoing day-to-day data implementation across the sites. This position will be hired upon notification of award.
- **Senior Program Manager** ensures that the program is implemented with fidelity, manages timeline and deliverables, provides support to implementation staff, and co-ordinates implementation activities. NTC's **Senior Program Manager** will be Victoria Hom who prior to coming to NTC lead Boston Public Schools' teacher induction program.

- **NTC Site Leads** support program implementation and fidelity, providing critical technical assistance and consultation as well as program delivery to build the capacity of the LEA program leaders and coaches. **NTC Site Leaders** will be Laura Baker for Austin ISD and Lori McNulty-Pope for Volusia CPS. Each brings multiple years of experience in teacher development and leadership of complex projects.

(2) The adequacy of the management plan to achieve the objectives of the proposed project on time and within budget, including clearly defined responsibilities, timelines, and milestones for accomplishing project tasks.

NTC has gone from managing a handful of induction and coaching engagements in 1998 to managing over 300 per year in 2015. It has been called the “gold standard” of induction and coaching focused programs by the *Chronicle of Higher Education*.^{lxi} It has accomplished this by being well managed and by delivering excellent work on time and on budget. The strength of CEO Ellen Moir and senior staff can be seen in the resumes in Appendix 2.

Management Structures. The organization proposes replicating successful management structures from our current SEED and i3 Validation grants, if selected for this award.

- The NTC SEED Management Council will manage the implementation of the initiative and will be directed by Project Director, Cindy Brunswick. The Council will provide supervision of the entire SEED program and strategic support to all components and partners. 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 of the U.S. Department of Education and those of its LEA partners, and moving forward in a timely and fiscally responsive manner. Members of the Council include: Project Director, Finance Director, Impact Director, Client Leads, and Senior Program Manager.
- The 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, and LEA Program Leaders. Once per year, SRI convenes all NTC and LEA stakeholders (Lead Coaches, Program Leaders, other District leadership) at NTC's annual Symposium to review evaluation design and high-level findings across sites.

- SEED Client Lead Forums: Each month, the NTC SEED Client Leads meet to discuss topics related to implementation across sites, deal with issues of contextualization, and plan cross-site learning. These Forums are facilitated by the Senior Program Manager.
- Lead Coach Forums: Lead Coaches from each LEA will participate in quarterly virtual learning communities, providing coaches with a community of practice that supports their unique role of Coach developer. Forums are facilitated by the Client Leads.
- SEED Site Visits: Two times per year, NTC Management Council members visit each LEA for in-person visits with Program Leaders, 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.
- SEED Retreat: During each year of the grant, NTC will convene in-person meetings with the Management Council, Client Leads, LEA Program Directors, LEA Lead Coaches, and SRI across sites to review data and program implementation, and create opportunities for LEAs to shadow each other. Retreats will rotate amongst the participating LEAs.
- National Teacher Coaching Network: Each LEA Program Leader will participate in NTC's national coaching network, comprised of all NTC partners and sites implementing instructional coaching programs across the country. This community meets in-person twice per year to share best practices and evaluation data outside of SEED

implementation, and inform NTC national program design.

Timeline and Milestones

Key: PD= Project Director; FD= Finance Director; ID= Impact Director; PI= SRI Principal Investigators; IA= Impact Analyst; SPM= Senior Program Manager; CL= Client Leads; LEA= Local Education Agency Partners (Volusia CPS, Austin ISD)

| Activities | Staff | Planning | | Program | | | Evaluation | | | |
|---|----------------------|------------|-------------------|-------------------|-------------------|----------------------|------------|--------------------------|------------|---|
| | | Wntr 16 | Spr/ Sum 16 | Fall 16- 18 | Wntr 17- 18 | Spr/ Sum 17-18 | Wntr 16 | Spr/ Sum 16- 18 | Fall 18 | |
| LEA Capacity Building | | | | | | | | | | |
| Project Goals* | PD, FD, ID, PI, LEA | X | | | | | | X | | |
| LEA Technical Assistance* | CL | X | X | X | X | X | | | | |
| Lead Coach Forums | CL, LEA | | | X | X | X | | | | |
| LEAs attend NTC National Teacher Coaching Network* | LEA | | X | X | X | X | | | | |
| Coach Roles and Responsibilities | | | | | | | | | | |
| Recruit, select and match coaches with teachers | CL, LEA | | X | | | | X | | | |
| Program Assessment, Evaluation, and Accountability | | | | | | | | | | |
| Program data collection | SPM, PI, ID, IA, LEA | X | X | X | X | X | X | X | X | X |
| Program Reporting * | PI, ID, IA, LEAs | | | | | X | | X | X | |

| | | | | | | | | | | |
|--|----------------------------------|---|---|---|---|---|---|---|---|---|
| SEED Evaluation Council | | X | X | | | | | X | X | X |
| Coach/ Principal/Teacher PD | | | | | | | | | | |
| Coach PD | CL, LEAs | | | X | X | X | | | | |
| Coach Forums | CL, LEAs | | | X | X | X | | | | |
| Principal PD | CL, LEAs | | | X | X | X | | | | |
| Teacher PD | LEAs | | | X | X | X | | | | |
| Content Development/ Alignment | | | | | | | | | | |
| Alignment to instructional Student Standards | CL | X | X | X | X | X | | | | |
| FAS and Learning Zone | | | | | | | | | | |
| Implement Learning Zone | ID, IA, CL, LEAs, PI | | | X | X | X | | | X | |
| Grant Oversight | | | | | | | | | | |
| SEED Management Council | PD, FD, SPM, CL, ID | X | X | X | X | X | | | | |
| SEED Client Lead Forums | CL, SPM | X | X | X | X | X | | | | |
| SEED Site Visits | PD, FD, SPM, CL, ID, IA, LEA | X | X | X | X | X | X | X | X | X |
| SEED Retreat | PD, FD, SPM, CL, ID, IA, LEA, PI | | | X | X | X | | | X | X |

Tasks Related to Sustainability and Scalability of the Project: Tasks related to the LEAs' readiness to implement, sustain and expand high-quality coaching programs are delineated in the timeline above and are marked with an asterisk.

(3) The extent to which the proposed management plan includes sufficient and reasonable resources to effectively carry out the proposed project, including the project evaluation.

The proposed project budget is \$7,800,498 over three years. As discussed in Section A1, participating teachers from the partner LEAs will affect and estimated 92,225 students over the grant period. In preparing our budget, NTC has analyzed data from our two other federal grants to ensure that costs are both adequate and reasonable to meet the demanding needs of the project. Please see attached budget narrative for detailed FTE allocations for all personnel.

Start Up Costs: \$1,990,453 in start-up costs will be incurred primarily in Year 1. These include: pre-assessment work and planning for the length of the grant, implementation of data collection systems, collection of baseline data, alignment of IT systems in the LEAs, hiring of Lead Coach positions establishment of the communities of practice, and initial technical assistance to the LEAs.

Operating Costs: Expenditures for Years 1–3 are those directly applicable to delivering the coaching programs in the LEAs. The amount is \$4,878,045.

Evaluation: The budget of \$932,000 provides for all evaluation activities, including collection and analysis of student test scores. It is anticipated these will be available in fall of 2019, followed by the final evaluation of student achievement and preparation of the final report.

D. Sustainability:

(1) The extent to which the proposed project is designed to build capacity and yield results that will extend beyond the period of Federal financial assistance.

The process of implementing a high-quality IC program must be intensely collaborative because it assumes from the outset the gradual reduction of NTC’s role in implementation. Initial assessment of the local LEA needs (mentioned above) and a formal MOU between the LEAs and NTC help to clarify and cement this mutual collaboration early on. Once the shared program vision, strategies, knowledge, skills, approaches, and effective structures for implementation are

inculcated at the LEA partner level, NTC's role can be greatly reduced.

Enriching the Leadership Pool. While working with their assigned teachers, participating in NTC IC PLS, attending NTC-facilitated Coach Forums, coaches continue to be employees of their districts; their growing expertise becomes part of an enriched pool of LEA human capital. NTC advocates an IC program model in which coaches are released full-time from classroom duties for a period not to exceed three years. Whether they return to their classrooms with enhanced skills or accept leadership positions, coach alums continue to represent the values and strategies of the program within their schools and LEAs.

Collaborative Implementation. The collaborative, gradual-release program implementation approach is structured to certify the LEAs to deliver NTC's high-quality IC professional development, thereby promoting the sustainability of the IC programs with minimal NTC support. Carefully-selected leaders from within the LEAs program will receive additional supports to become NTC co-presenters of the IC PLS. To ensure this, NTC and partner LEAs collaboratively implement a program-level formative assessment system that includes program standards and a continuum, allowing LEAs to monitor program implementation. Ongoing professional development for principals and LEA administrators is created in concert with the LEAs and reflects their assessed needs. Researchers have found that this collaborative process is key to the evolution of a shared vision and direction among all participants, an indicator of effective coaching programs.^{lxii}

Transfer of Program Leadership. The gradual transfer of responsibility for program implementation from NTC to the partner LEAs has the dual virtue of increasing the strength of IC leadership at the local level and decreasing program implementation costs by reducing NTC's participation. However, LEA partners have joined NTC in this proposal because there exists, at

their highest levels: 1) funds to support IC; 2) strong support for the programmatic approach; 3) a wish to grow it and own it and sustain it. They are committed to program expansion and sustainability, and the proposal allows adequate time to plan for it. Furthermore, both LEAs have worked with NTC for from 3 (Volusia CPS) to 7 (Austin ISD) years on the implementation and gradual release of NTC's Teacher Induction model; their satisfaction with, leadership capacity, and continued organizational commitment to sustainability and high quality implementation are self-evident in the ongoing success of the TI endeavor.

(2) The extent to which the proposed project is likely to yield findings and products (such as information, materials, processes, or techniques) that may be used by other agencies and organizations.

The evaluation program described below is designed to yield findings based on robust empirical data and professional observation. These findings will be presented at NTC's annual symposium, attended by over 900 educators and administrators each year, published in NTC materials and made available as requested by DOE. Because of the national and statewide prominence of NTC, Austin ISD, and Volusia CPS program leaders will have many opportunities to speak at conferences and present findings, techniques, and sample materials.

The proposed project is also likely to yield findings and products that will be used by other agencies and organizations due to NTC's vast network of education partner organizations across the nation, our current organizational growth plan to reach 60,000 teachers a year by 2018, our past successes scaling induction and coaching programs from 1,000 teachers a year to nearly 26,000 teachers a year, as well as our success with online products.

(3) The extent to which the applicant will disseminate information about results and outcomes of the proposed project in ways that will enable others, including the public, to use the information.

Transparency around evaluation activities will be a hallmark of this program and partnership.

Annual reports 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 based on qualitative and quantitative data captured during implementation. In NTC's current SEED and i3 grants focused on teacher induction, all partners gather annually to review initial findings. Additionally, through our i3 grant, NTC has collaborated with the Department of Education around a blog post that shared our evaluation activities. The final report will include impact findings on the effectiveness of the NTC induction model and implementation findings intended to facilitate model replication.

Furthermore, NTC has implemented a strategic press and media plan that has led to recent media appearances in Ed Week, The Huffington Post, PBS NewsHour and others. These high-visibility national media engagements, and the vast network of partners NTC has created throughout all 50 states, provides NTC a national format to disseminate and share the results and findings across the education sector for a broad impact. Upon receiving this award, NTC will develop a dissemination strategy plan for this project to leverage best practices. NTC proposes to build a library of videos archiving high-leverage pieces of this work as examples that may be used within and shared across LEAs focused on building capacity within the district(s).

E. Quality of the Project Evaluation

(1) The extent to which the methods of evaluation are thorough, feasible, and appropriate to the goals, objectives, and outcomes of the proposed project.

Design Overview: SRI International will conduct an independent, rigorous evaluation that will document the extent of implementation in the partner districts and identify the impact of the NTC IC model on teachers receiving IC and on their students. The evaluation will feature a RCT using clustered random assignment to assign schools within districts to the full NTC IC model or to the district's status quo coaching practices. Schools assigned to their district's status quo will receive NTC IC support after two years as control schools (i.e., they will form a delayed

treatment group; all references to the delayed treatment group means this group). Researchers will provide NTC with implementation feedback to refine the IC model in 2016-17, measure implementation and conduct teacher and student outcome analyses for all treatment and delayed treatment teachers in 2017-18, and provide feedback on sustainability and scale-up and teacher outcomes analysis for the delayed treatment group in fall 2018.

Implementation measures will come from NTC's online IC logs, annual teacher surveys, and site visits. Teacher outcomes will derive from direct classroom observations of treatment and delayed treatment teachers and teacher survey items. Student outcomes will be extracted from district data sets.

(2) The extent to which the evaluation includes the use of objective performance measures that are clearly related to the intended outcomes of the project and will produce quantitative and qualitative data. (4) The extent to which the methods of evaluation will, if well-implemented, produce evidence about the project's effectiveness that would meet What Works Clearinghouse Evidence Standards without reservations.

Evaluation Questions. The evaluation will address the following key impact and implementation questions, reflecting the logic model for NTC IC. Impact questions: (1) Does participating in the NTC IC model result in better teaching practices in the domains of classroom environment and instruction? (2) Does the NTC IC model result in higher teacher ratings on efficacy, lesson planning practices, data use for instructional purposes, and orientation towards a growth mindset? (3) Does participating in the NTC IC model result in improved student achievement in reading and math? (4) Among NTC-served teachers, is higher quality of coaching (e.g., in terms of frequency and focus of instruction) related to more effective instruction and higher student achievement? Implementation questions: (1) To what extent and in what ways does implementation of the NTC IC model differ within and across schools? (2) What factors contribute to and what factors hinder strong implementation across schools and districts? (3)

What factors support sustainability and scale-up across schools and districts?

Impact Study: *Random Assignment in Volusia CPS, FL, and Austin ISD, TX.* SRI will randomly assign all elementary (45), middle (12), and combined K-8 or 6-12 (middle school grades only) (2) schools in Volusia CPS and 50 elementary (50) and middle (10) schools in Austin ISD to either the treatment (50%) or delayed treatment (50%) group. SRI proposes using this cluster random assignment instead of individual teacher assignment because the NTC IC model consists of PLCs that would not be practical to implement with only portions of a school staff without risking treatment contamination within schools.

Student outcome measures. To assess students' academic achievement, SRI will collect annual student test score data linked to teachers from each site for 2015-16, 2016-17, and 2017-18. The study will use scores from each district's respective state standardized tests in English language arts and mathematics (Florida Standards Assessments [FSA] and State of Texas Assessments of Academic Readiness [STAAR], respectively). Each state requires reading/English language arts and math assessments in grades three through eight. SRI will collect historical student achievement data from each district to establish equivalency between treatment and delayed treatment schools at baseline and to control for students' prior achievement (see analysis section below).

Analysis of NTC effect on student reading and math achievement in Volusia CPS, FL, and Austin ISD. SRI will conduct student test score analysis for teachers teaching tested grades and subjects.⁶ Researchers will standardize test scores within each of the districts and combine the analyses for reading and for math across the two districts. For each subject, researchers will standardize test scores at each grade level and conduct analysis combining all tested grades

⁶ Researchers will determine if teacher outcomes on the survey differ for teachers in untested grades and subjects from those in tested grades.

(grades four through eight, as grade three students do not have pretests) based on the standardized test scores, while adjusting for grade-level effect. This analysis will involve positing a two-level hierarchical model with student and school levels, with NTC program effects estimated at the school level. The model is:

$$y_{cj} = \beta_0 + \beta_1(NTC_j) + \beta_m(mth - studentcovariate_{cj}) + \beta_l(lth - schoolcovariate_j) + u_{cj} + r_j$$

where c is students, j is schools; Y_{cj} is a student reading or math score; and u_{cj} and r_j are student and school random effects. β_l is the estimated impact of the NTC program on student achievement.

Power analysis for student outcomes. The minimum detectable effect size (MDES) is 0.12, assuming an average of 650 students per school;⁷ that 10% of the variation in student test scores lies in the school level; that student pretest score and other covariates explain 50% of the between-school variation; and that there are 77,350 4th- through 8th-grade students with reading or math scores in 119 schools.

Teacher outcome measures. The evaluation will include five teacher outcome measures: classroom teaching, lesson planning, data use for instructional purposes, orientation towards a growth mindset, and teacher efficacy. To measure classroom teaching, SRI will conduct observations of a sample of teachers receiving the NTC treatment and teachers in the delayed treatment schools. Observations will use the Danielson framework,^{lxiii} an externally validated instrument that aligns well with the NTC model, and will focus on two domains: classroom environment and instruction. Observation scores will be used as an intermediate outcome

⁷ Assuming 650 students per school and 15% of the students not included in the analysis due to missing values. The estimate of 650 is from starting with the number of students at each school level, eliminating PK-3 grades, missing test scores due to EL, and SPED status, etc.

measure and in association with teachers' student achievement outcomes. SRI plans to conduct one observation per teacher in the observation sample during fall 2016 and spring 2018. The observations in fall 2016 will provide a baseline comparison between treatment and delayed treatment teachers' classroom teaching. SRI will use the observations in spring 2018 to analyze the impact of the model on practice after one full year of implementation.

In addition to classroom observations, SRI will administer a survey to a sample of teachers receiving NTC treatment and teachers in the delayed treatment schools. This survey will include additional measures of classroom teaching, such as assignment demand, quality of discussion, critical thinking, and frequency of writing. These measures will be adapted from existing scales of classroom teaching that have been validated in other contexts, particularly scales from the Consortium on Chicago School Research (CCSR) teacher surveys. The teacher surveys SRI administers will also include measures of teacher efficacy, lesson planning practice, data use, and orientation towards a growth mindset. These measures will also be based on existing validated survey scales wherever possible.

Sample for teacher outcomes. Using the same school sample described under student outcomes, SRI will survey all K-8 teachers of core subjects. For observations, SRI will sample two to three K-8 teachers of core subjects to achieve a total of 75 treatment and 75 delayed treatment teachers in each district.

Analysis of NTC effect on teacher outcomes. Teacher outcomes collected from survey and classroom observations will be comparable across districts. Thus, researchers will pool data from all districts to conduct the impact analysis, positing a two-level hierarchical model with teacher and school levels. The treatment effect will be estimated at the school level. The model is shown

as : $y_{ij} = \beta_0 + \beta_1(\text{NTC}_{ij}) + \beta_k(\text{kth - teacher covariate}_{ij}) + \beta_l(\text{lth - school covariate}_j) + e_{ij} + r_j$ where i is

teachers, j is schools; Y_{ij} is a teacher outcome; NTC_{ij} equals 1 for teachers in schools assigned to the NTC program and 0 for delayed treatment schools; e_{ij} and r_j are teacher and school random effects. β_l is the estimated impact of NTC on the teacher outcome.

Power analysis for teacher outcomes. Assuming a total of 300 observed teachers, half treatment and half delayed treatment, and assuming 15% of the variation in the outcomes is explained by teacher and school covariates, the observation analysis will be able to detect a MDES of 0.32. Assuming a total of 2,780 surveyed teachers, with an 80% response rate (approximately 19 respondents per school), half treatment and half delayed treatment, and assuming 15% of the variation in the outcomes is explained by teacher and school covariates, the survey analysis will be able to detect an MDES of 0.14.⁸

Implementation Study: Annual site visits and a teacher survey will allow researchers to monitor the quality of implementation, provide feedback to the NTC, explore how specific program components might lead to changes in outcomes, and understand the “coaching as usual” received by delayed treatment teachers. The implementation measures will map to the NTC IC model components listed in their logic model.

Teacher Survey. SRI will develop implementation questions that will be administered in the same survey as that described above to capture teacher outcome measures. Implementation questions will measure IC levels in treatment and delayed treatment groups (e.g., instructional coach or no coach, frequency and intensity of coaching, nature of coaching, what tools coaches use, and other supports).

Sample. The teacher survey sample for implementation will be the same sample discussed above for survey-based teacher outcomes. It is essential to survey both treatment and

⁸ These assumptions are based on empirical data culled from other studies of classroom observation and teacher survey.

delayed treatment teachers to understand the extent to which any IC practices in delayed treatment schools (i.e., status quo coaching) resemble the NTC IC model as implemented in the treatment schools. For example, a lack of differences in IC practices between treatment and delayed treatment schools might explain a lack of NTC coaching effects on the outcomes studied.

Implementation Topics and Scales. SRI will develop or replicate robust survey scales that measure specific implementation components from the NTC IC model. For example, the survey will determine whether and how often respondents participate in PLCs, the focus of the PLCs, and perceived benefits; whether respondents received one-on-one coaching, the focus of that coaching, frequency, and perceived benefits; and whether coaching recipients used formative assessment tools designed to improve instructional strategies. SRI will replicate existing validated and reliable survey scales if they are relevant. For implementation components with no existing survey scales, SRI will develop new items and pilot test them with teachers teaching the same grades and content areas outside of the study districts.

Administration. Using SRI's secure online survey platform, SRI will survey the teacher sample in treatment and delayed treatment schools in fall 2016 to collect baseline measures of outcomes. SRI will field the implementation questions in the treatment school sample only in spring 2017 to provide preliminary implementation data to NTC. SRI will administer the full teacher survey (implementation and outcomes questions) to treatment and delayed treatment schools in spring 2018, at the end of the first year of implementing the full NTC IC model. Finally, SRI will administer the full survey again in fall 2018 to a sample of delayed treatment schools to inform NTC and the districts about scaling the IC model.

Survey Analysis of Implementation. For each round of surveys, SRI will use factor

analysis to create reliable scales that describe coaching activities for treatment and delayed treatment teachers, as well as the teacher outcomes discussed above. To assess differences in implementation measures between the two groups, SRI will conduct chi-square tests for categorical variables and ANOVA for continuous variables. These measures can then act as predictors in analyzing the relationship between levels of coaching and teacher outcomes (described above).

Online coaching log data (Learning Zone). Attendance and other key coaching activities such as coaches' completing formative assessments with teachers will provide additional data on the PLC participation, one-on-one coaching participation, frequency, and content.

Site Visits. SRI will conduct site visits to each district to understand and support the implementation of the IC model. Site visits to treatment schools in winter 2017 will offer formative feedback to help NTC refine the IC model during the pilot implementation year. Visits to both treatment and delayed treatment schools in winter 2018 (the first year of implementing the full model) will identify factors that facilitate or hinder implementation in treatment schools and elucidate typical coaching in delayed treatment schools. Finally, site visits in late fall 2018 to treatment and delayed treatments schools will focus on issues of scale up and sustainability across the districts. The timing of the site visits will allow the schools some time to implement the coaching model each year before the visit—to assign coaches, solidify PLC teams and schedules, and engage in enough coaching for respondents to have deeper perspectives on its usefulness and efficacy.

Site and Respondent Samples. Our site sampling strategy will vary based on the purpose for the site visits each year. In the pilot implementation year, researchers will visit a purposeful sample of 7 elementary and middle schools in the treatment group in each district, selecting

schools with the most one-on-one coaching efforts and/or more successful PLCs (based on coach/district recommendations). The sample may also include a few schools that are struggling with implementation and might offer lessons about barriers. Approximately ten teachers per school and five district administrators will participate in interviews for each district.

In winter 2018 (first year implementing the full model), researchers will again visit a sample of 7 schools in each district (and invite ten teachers per school and five district administrators per district to interviews). This sample will include schools exhibiting promising practices based on the site visits in the prior year, recommendations from coaches/districts, and results from the survey administered in spring 2017. These visits will focus more in depth on factors that facilitate their instructional coaching activities. Because researchers will be analyzing the NTC impact on student and teacher outcomes for the first year implementing the full model, the sample also will include a small number of delayed treatment schools to learn about the typical coaching that teachers receive, in contrast to the NTC model.

The third year of site visits will focus on issues of scale up and sustainability. Thus, in late fall 2018, researchers will return to two treatment schools that seem to have strong, sustainable programs (based on visits in winter 2018). They also will visit two delayed treatment schools to learn how the district is supporting more schools with the instructional coaching model.

Within each school site visitors will interview a sample of teachers of core content areas, coaches, and the school leader to understand their perceived effects of the IC model (or the typical district coaching model, in the case of delayed treatment schools in the second year of site visits) and factors supporting or hindering implementation, scale up, and sustainability. At each school, a mix of teachers who received individual coaching and those who only participated

in the PLCs will be interviewed. Researchers will also interview district administrators to understand the district's teacher development strategies, district accountability issues, and educator evaluation policies and practices as contexts within which the NTC coaching is being implemented.

Protocols. SRI will develop semi-structured interview protocols aligned to the research questions and tailored to specific respondent types. Sample interview topics include teacher buy-in and receptivity to coaching, the nature of coaching (frequency, focus, and usefulness), the type of feedback and follow-up teachers receive, coaching training/supports, teacher collaboration and community, school leader instructional support, and contextual factors that affect the frequency and focus of coaching (e.g., schedules, accountability ratings, instructional change/reform initiatives, district HR policies).

Site Visit Analysis. The qualitative data will provide a more comprehensive understanding of the district and school contexts that affect teacher supports, complementing the implementation data derived from the teacher survey. After each site visit, site visitors will follow a formal analytic process in which they will complete an internal structured debriefing guide for each school and district to integrate interview data across respondents, note consistent and inconsistent answer patterns by respondent types, and provide evidence through details and quotations from interviews or supporting documents. Within each district, the interview data will be analyzed according to topics that help explain the implementation in treatment schools, expand upon promising practices in treatment schools, and identify differences in coaching at treatment and delayed treatment schools. After within-district analysis, the research team will compare implementation themes across the two districts to generate themes for the overall NTC model implementation.

(3) The extent to which the evaluation will provide performance feedback and permit periodic assessment of progress toward achieving intended outcomes.

Reporting: SRI will provide formative feedback to NTC based on data gathered through surveys, observations, and district- and school-level interviews to inform model refinement and replication after data collection and analysis each round. Additionally, SRI will participate in monthly calls with each LEA to understand contextual changes and help problem solve and process improve around evaluation-related issues. Annual reports will integrate findings across data sources, addressing the implementation and impact of the IC model as appropriate during the course of the study. The final report will include impact findings on the effectiveness of the NTC IC model and implementation findings intended to share promising practices and facilitate model scale up and sustainability. The SRI leadership team will collaborate closely with NTC on the overall direction of the evaluation, providing timely formative feedback through memos, data charts, and oral briefings after each major round of data collection. Regular meetings with NTC and district representatives will ensure that the evaluation meets program needs and will engage them in interpreting implementation and outcome results.

| Years | Program | Evaluation |
|------------------------|---|--|
| Jan. –Aug. 2016 | Planning | Refining design, instrument development |
| Sept. 2016 – Aug. 2017 | Implementation pilot year and model refinement | Baseline teacher outcomes, student data collection, implementation data collection, formative feedback, and annual reporting |
| Sept. 2017 – Aug. 2018 | Model implementation | Teacher and student outcomes data collection, implementation data collection, formative feedback, and annual reporting |
| Sept.– Dec. 2018 | Model implementation with delayed treatment schools | Scale up and sustainability data collection, formative feedback, outcomes analysis and reporting |

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