

**THE NETWORK TO TRANSFORM TEACHING:
ADVANCING EQUITY AND ACCELERATING IMPROVEMENT WITH BOARD-
CERTIFIED TEACHERS WHERE THEY ARE NEEDED MOST**

National Board for Professional Teaching Standards

Supporting Effective Educator Development (SEED) Grant | CFDA Number 84.367D

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Absolute Priority 4: Promoting Advanced Certification and Credentialing

Through the National Board's standards-based, peer-reviewed advanced certification program, more than 110,000 teachers across all 50 states have achieved Board certification, with nearly half teaching in high-need schools. While this number represents a small percentage of the country's educators, over a decade of research conducted nationwide confirms that students of National Board Certified Teachers (NBCTs) learn more than those of other teachers. NBCTs are the largest identifiable group proven to impact student learning and achievement.

To advance a vision of accomplished teaching for every student, the National Board and its partners propose expanding the Network to Transform Teaching (NT3) with the assistance of the 2015 Supporting Effective Educator Development (SEED) grant program. The National Board's initiative aims to promote teacher and student growth system-wide through the achievement of three interrelated goals: increase the number of NBCTs (**Goal 1**), increase the number of NBCTs in instructional leadership roles (**Goal 2**), and increase the number of early career educators developing into accomplished teachers (**Goal 3**).

This initiative builds on the burgeoning success of NT3, launched with funding from a 2013 SEED grant. NT3 is designed to advance student learning by strengthening the structures, policies, and programs that support teacher growth and development. Since 2013, state and district partners have leveraged the expertise of NBCTs to improve the teaching practices of educators and to build a highly effective workforce in which accomplished instruction and Board certification are the norm.

NT3 is grounded within the local context of four states and two large districts.¹ The collaborative model facilitates collaboration among teachers, administrators, and labor leaders to

¹ The National Board's current partners include the following sites: Arizona, Kentucky, New York, and Washington, as well as Albuquerque, NM, and San Francisco, CA.

enhance working conditions and promote a coherent teaching career continuum anchored by National Board Standards and Certification. Early results demonstrate that the foundation for change is being laid, with critical gains in the infrastructure required to increase NBCTs and NBCT instructional leaders. The recruitment of Board certification candidates is growing across the six sites, from a 24 percent share of all candidates the previous year to 36 percent this year. Sixty percent of those candidates are in Title I schools, and nearly 40 percent are pursuing certification in STEM-related subject areas. NT3 is shifting the professional culture and political climate of preK-12 education. Funding through a 2015 SEED grant would allow the National Board to extend activities in the six current sites and expand the initiative to four additional states, with embedded district partners.²

The objectives of this initiative are closely aligned with the goals described within “Transforming the Teaching Profession,” a vision statement signed and co-sponsored by the U.S. Department of Education at the 2012 Labor-Management Collaboration Conference. (See Appendix F.) Signatories of that vision statement provide ongoing support to NT3 and include the American Federation of Teachers (AFT), the Council of Chief State School Officers (CCSSO), the National Education Association (NEA), and the National School Boards Association (NSBA). The National Board will also be joined in this effort by the Carnegie Foundation for the Advancement of Teaching and the American Institutes for Research (AIR).

The National Board’s initiative addresses Absolute Priority 4: Promoting Advanced Certification and Credentialing. The initiative also satisfies the priorities below, listed in the order they appear in this proposal:

² New partner states are Alabama, Illinois, Maryland, and North Carolina. Albuquerque has participated in NT3 since 2013, though the state of New Mexico is new to the project; they will now work together as a state-district team.

- Absolute Priority 1: Providing Moderate Evidence of Effectiveness and Competitive Preference Priority 1: Providing Strong Evidence of Effectiveness,
- Competitive Preference Priority 3: Promoting STEM Education,
- Competitive Preference Priority 4: Supporting High-Need Students, and
- Competitive Preference Priority 2: Improving Efficiency.

The proposed activities use innovative and evidence-based methods to affect nationally significant change while meeting specified priorities, requirements, definitions, and selection criteria as outlined within the SEED Notice Inviting Applications.

Evidence of Effectiveness (Absolute Priority 1 and Competitive Preference Priority 1)

National Board Certification, the profession’s advanced certification for teachers, meets requirements for both moderate and strong evidence of effectiveness through its ability to identify highly effective teachers who promote their students’ academic achievement. Studies of the effectiveness of NBCTs cumulatively demonstrate that their students grow more in their learning than do students of other teachers, including unsuccessful applicants. In 2008, a comprehensive review of 11 existing studies by the National Research Council (NRC) found that, “the evidence is clear that National Board [C]ertification distinguishes more effective teachers from less effective teachers with respect to student achievement” (NRC, 2008, p.179).

The NRC’s conclusion is based on studies meeting What Works Clearinghouse (WWC) standards (with or without reservations) and other compelling studies. All the studies mentioned in this section were reviewed by WWC-certified reviewers against WWC standards. Studies meeting standards are discussed below; they collectively meet both the moderate and strong evidence requirements, by demonstrating statistically significant, favorable impacts on student achievement in settings that overlap with partner sites and include large, multi-site samples.

One experimental study by Cantrell, Fullerton, Kane, and Staiger (2008) examined the impact of NBCTs on student achievement by analyzing teachers and students in Los Angeles Unified School District. For each National Board Certification applicant meeting certain criteria at the beginning of the academic year, the researchers identified a teacher in the same grade level, calendar track, subject, school, and level of experience. The applicant and their matching teacher formed a random assignment unit. There were 99 applicant/non-applicant pairs, and student rosters were randomly assigned to the teachers in each pair. At the end of the academic year, 30 of the applicants obtained their certification, 30 did not achieve certification, and 40 teachers withdrew their applications.³ The difference between the achievement of students of the successful National Board Certification applicants and the achievement of students of non-applicants was calculated to be .046 standard deviations for mathematics and .06 standard deviations for reading (each contrast based on approximately 1,148 students). Partly due to the low power for the study, neither of these impacts were significant. (There was only a 9 percent chance of detecting a significant effect if it existed; the standard in educational research is 80 percent.) However, the contrast between successful and unsuccessful applicants was calculated to be .213 and .194, both of which are statistically significant.⁴ This latter finding indicates *strong evidence* that students taught by NBCTs outperform students of non-certified teachers.

The combination of several studies that meet standards with reservations and include large, multi-site samples provides further *strong evidence* of the positive impact of NBCTs on student achievement. Goldhaber and Anthony (2007) used 1996–97 through 1998–99 data on all

³ Cantrell and colleagues do not explicitly mention the numbers of accepted applicants, unsuccessful applicants, and applicants that withdrew. The numbers of teachers are inferred from the note following Table 3 in the study.

⁴ This impact estimate is not mentioned in WWC’s “Quick Review” of this study. This impact estimate is the combination of the estimates for NBCTs versus non-applicants and the estimate of unsuccessful applicants versus non-applicants (see Table 6 in the study, “with controls” column). This is a procedure that the authors did as well (see pages 26 and 27 of the study).

public school teachers and students in North Carolina to examine the impact of NBCTs, National Board Certification applicants, and non-applicants. The standardized mathematics and reading achievement of students of teachers in these three groups did not differ prior to exposure to their teacher. Thus, the study meets WWC standards with reservations. The relevant impact estimates are the weighted average of the current NBCT versus non-applicant contrast and future NBCT versus non-applicant contrast. In Table 2 of the study report, the two values for reading in column 1 average to .27 standard deviations ($p < .001$), and the two values for mathematics in column 7 average to .35 standard deviations ($p < .001$). Both contrasts remain significant after the adjustment for clustered data is applied.

Cowan and Goldhaber (2015) looked at student mathematics and reading scores in grades 3-8 in Washington to compare student achievement between classes with and without an NBCT. They used a value-added model and controlled for lagged achievement, various student demographics, and years of teaching experience. Although students in classrooms with NBCTs showed higher achievement at baseline than their counterparts in classrooms without NBCTs, the difference in standard deviations was less than .25 and the study statistically adjusts for these differences, thus meeting WWC standards with reservation. The study found that NBCTs are more effective than non-NBCTs, including a difference in standard deviations of .02 in elementary mathematics and reading ($p < .001$) in the school-by-grade-by-year fixed effects model and .05 in middle school mathematics ($p < .001$), which is robust across models and equates to 5 weeks of learning gains. Further, teacher effectiveness is related to teacher performance on the National Board assessment; a difference on the assessment score of one standard deviation is associated with a difference of .04-.05 standard deviations in student achievement across levels and subjects.

Other research studies on impacts of National Board Certification exist, including many that were part of the NRC's report (e.g., Cavalluzzo, 2004; Cavalluzzo et al., 2014; Chingos & Peterson, 2011; Clotfelter, Ladd, & Vigdor, 2007a, 2007b; Strategic Data Project, 2012a, 2012b; Smith, Gordon, Colby, & Wang, 2005; Stone, 2002; Vandervoort, Amrein-Beardsley, & Berliner, 2004). These studies, presented in Appendix E, do not meet WWC standards for two reasons. First, several previous studies (e.g., Humphrey, Koppich, & Hough, 2005) noted that NBCTs tended to teach in higher performing schools and have higher performing students, a finding that is not the case today. For example, in Kentucky and New York, both partners in NT3, more than 70 percent of NBCTs serve in high-need schools. This selection issue in historical studies tends to make the baseline comparison criterion difficult to meet when conducting quasi-experimental studies. Second, in teacher effectiveness research, there exists a tradition of reliance on controlling for school, teacher, and student effects (including baseline scores) statistically. The tradition of intervention research, however, attempts to control for those various factors through selection (i.e., creating similar samples) rather than statistically.

Though the studies referenced in the previous paragraph do not meet WWC's evidence standards, the consistency of their findings with the findings of studies that do meet WWC standards reinforces the conclusion that NBCTs have positive impacts on their students' achievement. The other studies also speak to the diverse districts and states in which National Board Certification and NBCTs have been studied, increasing their generalizability and applicability to the partners in this initiative. Building from this evidence base on the significance of advanced certification, NT3 will advance data-driven approaches to increase the number of NBCTs, capitalize on their expertise through instructional leadership roles, and strengthen the early career trajectory to accomplished teaching for new teachers.

Section A: Significance

A (1) Significance on a National Level

To ensure that all students achieve a high level of learning that will prepare them for future success, accomplished teaching must be the norm in this country, not the exception. However, the systems that currently guide teacher training and development and ensure instructional quality within our schools are haphazard. Isolated models of excellence exist, but policies and programs as a whole are not designed to develop teachers along a coherent continuum beginning in pre-service, proceeding through induction, and advancing to accomplished practice and instructional leadership. Other professions have tackled this challenge. Aspiring doctors are guided continuously by licensed and board-certified physicians—they master curricula created by these physicians; receive training from them during medical school, internship, and residency; and ultimately earn certifications awarded by the same body of professionals. In comparison, the path of aspiring teachers is much more idiosyncratic in nature, with mentors who are often not Board-certified and programs that provide little in the way of coherent mediated entry. This inconsistent approach to the training and development of our teachers means that too many of our students will fall short of the high standards of learning now required for their future success.

Teachers must pursue high standards of practice akin to those governing other occupations, with a career path leading systematically to accomplished teaching, advanced certification, and instructional leadership based on professional expertise. A workforce where Board certification is the norm is the hallmark of a fully developed, high-quality, sustainable profession. In education, we must transform the structures, policies, and programs that support teachers and define the profession to improve learning outcomes for all students.

The National Board is uniquely positioned to lead the way in this movement. National

Board Standards are developed by accomplished teachers to define accomplished practice across 25 certificate areas. Accomplished practice is measured using a valid, reliable standards-based performance assessment that employs multiple measures of effectiveness, thus providing a rigorous, transparent, and fair evaluation. The National Board recently revised the certification process to reflect current research and best practices in teaching. The improved process maintains the rigor of National Board Certification while removing barriers and providing flexibility to enable more students to learn from accomplished teachers. National Board Certification is designed by and for teachers who value the professional demands and improved student outcomes associated with advanced certification. In NT3, the National Board and its partners are anchoring the teaching career continuum in the certification process while strengthening the structures, policies, and programs that promote professional development, instructional effectiveness, and student growth.

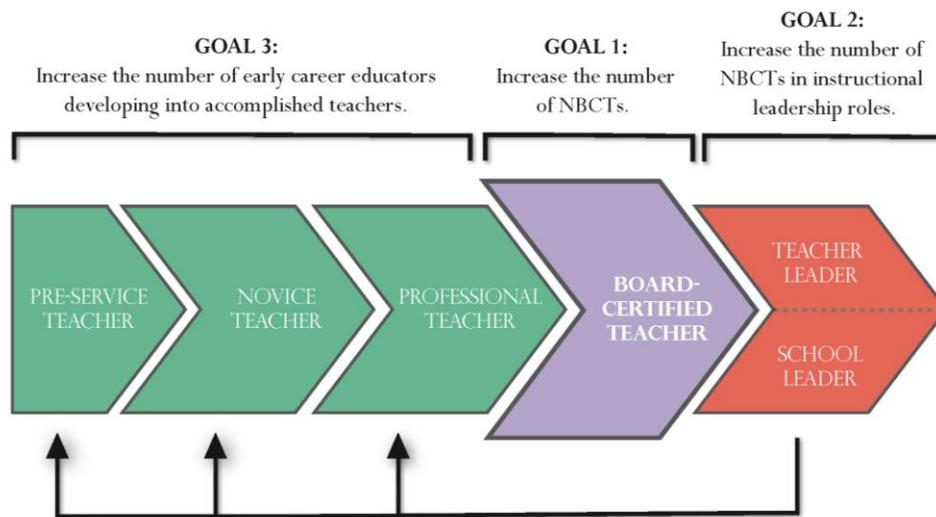
To be successful, this transformation requires the commitment of stakeholders and the contributions of teachers, administrators, and labor leaders throughout the field. NT3 acts on the belief that “the most promising path to transforming American education is student-centered labor-management collaboration” (U.S. Department of Education, 2012, p. 3). This form of cooperation is therefore embedded within every stage of project planning and implementation so that partners can share their experiences, pool their insights, and produce systemic change together. The diverse group of states and districts within this initiative will further ensure that outcomes can be scaled based on varied local and regional needs. To expand and extend this work with its partners, the National Board now seeks a 2015 SEED grant to continue building, testing, and strengthening the improvements that will transform critical stages of development for highly effective teachers nationwide.

A (2) Contribution to Theory, Knowledge, and Practices

This initiative aims to contribute to theory, knowledge, and practices in two ways: (1) by advancing a unifying theory for the transformation of the structures, policies, and programs that support teachers and define the teaching profession and (2) by deploying a practical model that alters *the way* teaching and learning—and the systems that support it—are analyzed, evaluated, and improved.

Structured on the progressive, standards-based development of teachers and anchored by Board certification, the teaching career continuum represents the organizing principle that drives work within NT3. (See Figure 1 below.)

Figure 1. Theory of Change



Systemic improvement is supported by a sequenced approach to reform, whereby a concentration of NBCTs (Goal 1) leverage their instructional expertise to influence policies and programs (Goal 2) with a focus on fostering accomplished practice in novice teachers (Goal 3). By developing breakthrough improvements across the continuum, partners will create new knowledge about how to address the intertwined issues of teacher development, teacher retention, teaching effectiveness, and teacher leadership. As a result, sites will develop more

capable teaching workforces, with a strong resulting impact on student growth and achievement.

The continuum contributes to teacher and school leadership theory by differentiating the teaching career based on sharply defined benchmarks of teacher development. However, moving from theory to practice poses a significant challenge within a vast system of schools, districts, and states, each with its own needs and diverse groups of students. As a Networked Improvement Community,⁵ NT3 uses a structured approach to find systematic solutions to complex problems using an evidence-based process, balancing local context with nationwide applicability. Disciplined investigation guides the productive collaboration of different stakeholders by keeping them focused on measurable targets aligned with a common goal. Standardized protocols for planning, inquiry, implementation, problem solving, and knowledge development lead participants to a shared understanding of key challenges and solutions—and an appreciation of the local factors they must address to ensure successful implementation. For instance, all sites may need to bolster candidate recruitment to increase the number of NBCTs (Goal 1), but recruiting methods will necessarily differ at each site based on available resources and the unique needs of diverse teacher groups. “*What to do*” is the constant in this equation, while “*how to do it*” represents the all-important variable. Participation in NT3 helps educators understand all aspects of their goal to formulate the most viable method for achieving it locally.

In this initiative, a system for cross-site collaboration is a significant aspect of NT3’s contribution to the field. The definition of a shared problem that identifies essential drivers of improvement and uses common indicators to measure progress keeps communication productive and encourages sites to share their individual breakthroughs. As a result, the collaboration model deepens the knowledge base of all participants—showing them what works, for whom, in which

⁵ Networked Improvement Communities focus on the deep understanding of a common problem, the system that produces it, and a shared working theory to improve it (Bryk et al., 2015).

contexts—so every site can adopt its own approach to achieving continuous improvement. For example, NT3 partners have been working on this common problem: how best to adapt their candidate support programs to the newly revised certification process. Albuquerque addressed this situation by moving from a yearlong support program to a rotating semester model, while other partners learned from this restructuring and are now testing more responsive ways to support their own candidates. The Networked Improvement Community solves the age-old problem created by “islands of excellence,” which struggle to gain traction beyond their borders. In contrast to typical plans for program implementation, the innovative NT3 model is based on multidimensional collaboration across stakeholder groups and community sites—collaboration which will support and advance system-wide improvement on a national scale.

The National Board’s initiative is well timed, providing the field with an ideal framework for developing teacher effectiveness along a coherent career continuum—one that is based on professional standards and supported by a multiple measure performance assessment that leads to advanced certification. This initiative possesses a unifying theory, a practical model for stakeholder collaboration, and a set of common objectives that will empower NBCTs to utilize their professional expertise for the advancement of teaching effectiveness and student learning. The power of NT3 lies in this synergy.

A (3) Magnitude of Improvements in Teaching and Student Achievement

NT3 is based on the National Board’s proven ability to distinguish accomplished teaching through its certification process. More than a decade of rigorous research establishes the value of National Board Certification and the magnitude of its effect. For instance, instruction by an NBCT is tantamount to an additional one to two months of learning; in comparison, completion of a Master’s degree, on average, has no effect in regards to student learning (SDP, 2012b;

Clotfelter, Ladd, & Vigdor, 2007a; Betts, Zau, & Rice, 2003).

NT3 will build from this extensive evidence base to improve teaching quality and student learning across sites, especially in STEM subjects and high-need schools. In doing so, it will create “*proof points*”—districts and states that more coherently support teacher growth and development across the career continuum. This will produce a notable effect in sites:

1. More than 20,000 teachers will pursue Board certification, with at least 10,000 achieving Board certification through this initiative.⁶ Furthermore, at least 40 percent of these teachers will be in STEM subjects and 50 percent in high-need schools, targeting the initiative’s work where it is needed most.
2. At least 10 districts will strengthen teacher leadership systems, increasing the number of NBCTs in identifiable instructional leadership roles by 25 percent. A majority of these districts will serve high-need populations.
3. At least 10 districts will focus the expertise of NBCTs on supporting new teachers, increasing the number of early career teachers ready to pursue Board certification in their fourth or fifth year by 25 percent. A majority of these districts will serve high-need populations.

Early results are promising. For example, in New York, more teachers are interested in pursuing certification than the state can support financially. Such a situation has never occurred before and, as a result, the state is exploring new policies to sustain this momentum. Similarly, growing interest in other states has led to the rapid expansion of candidate support programs, with sites working quickly and creatively to meet candidate needs.

⁶ Given the recent revision to the Board certification process, this target is the closest approximation based on historical achievement rates. There is not yet enough data to determine achievement rates in the revised process, but there is no indication that achievement rates will be lower.

Usable knowledge from the network will be harvested and packaged to be spread to states and districts beyond NT3. Independent evaluator American Institutes for Research (AIR) will analyze all project gains in National Board Certification, teaching effectiveness, instructional leadership capability, and student achievement, using the objective performance measures outlined in Section E, Project Evaluation. As sites develop more strategies to support the scaling of Board certification and to strengthen its impact on the career continuum, the National Board will share case studies with states and districts outside NT3. (See Section D (3).) This knowledge and its application in growing numbers of places contribute significantly to the advancement of teaching and learning nationwide.

Section B: Project Design and Services

B (1) Goals, Objectives, and Outcomes

NT3 is grounded in common goals, organized by intermediate objectives, and measured by shared outcomes that support the development of breakthrough improvements. The three goals link to each stage of the teaching career continuum:

- Goal 1: Increase the number of NBCTs;
- Goal 2: Increase the number of NBCTs in instructional leadership roles; and
- Goal 3: Increase the number of early career educators developing into accomplished teachers.

Throughout, emphasis is placed on STEM instruction and high-need schools (Competitive Preference Priorities 3 and 4), directing attention to these critical areas for improvement. See Appendix I for goal-specific theories of improvement, summarized in the tables that follow.

Goal 1: Increase the number of NBCTs

Partners will increase the number of NBCTs, especially in STEM subjects and high-need schools. NT3 aims to produce 10,000 new NBCTs during the grant period by enhancing structures, policies, and programs related to certification and utilizing proven strategies for the recruitment and support of candidates. In 2013, NT3 leaders evaluated states and districts with track records of successful recruitment and support. Their findings informed the development of an improvement theory for rapidly growing the number of NBCTs, outlined below in Table 1.

In 2014, current sites conducted self-assessments in relation to this theory and determined which objectives to prioritize based on local needs. When new sites join NT3, they will undertake the same process to establish improvement plans that address their largest challenges. Current sites will continue building from their early success to achieve greater gains—importantly, extended funding will also allow these sites to implement policy and program changes that have been initiated but not fully deployed.

Table 1. Goal 1 Objectives, Outcomes, and Measures

Objective	Outcome	Measure
Goal 1: Increase the number of NBCTs	– At least 10,000 teachers will achieve Board certification, with 40% in STEM subjects and 50% in high-need schools	Number of NBCTs
A: Stimulate state and district investment in Board certification	– System leaders understand the value Board certification brings to student learning – Systems demonstrate Board certification as a priority	Rating on a site assessment of system investment
B: Recruit Board certification candidates	– Teachers feel prepared to identify as accomplished educators – Teachers are motivated to certify	Number of candidates pursuing at least one component of Board certification
C: Strengthen candidate support	– Candidates understand requirements and receive ongoing assistance – Candidates become part of a cohort – Candidates receive skillful, effective coaching – Candidate support providers receive ongoing training and assistance	Percentage of candidates who complete the Board certification process

Case Study: Arizona

In Arizona, partners identified recruitment (Objective B) as a critical first step. Arizona studied the effective deployment of NBCT instructional leaders in Washington (the nation's leader in growing the number of NBCTs) and created their own Ambassador program, which leverages local connections and NBCT leadership to motivate colleagues. The Ambassadors formed a local hub for information related to Board certification, hosting school-based informational sessions for potential candidates, and providing talking points to NBCTs to use in recruiting colleagues. The Ambassador program proved so successful that demand for support soon exceeded the number of support providers. After three months with Ambassadors on the ground, Arizona was able to shift its priorities to local investment (Objective A) and candidate support (Objective C). After investigating opportunities for local investment, partners are working to secure conditional loans for future candidates to minimize cost of certification as a potential barrier. Working in cooperation with other NT3 sites, the state is also redesigning support programs to ensure they are sustainable and scalable. As demonstrated by the work in Arizona, successes may introduce new challenges, which lead to the creation of additional strategies for achieving scale, all of which contributes usable knowledge for future sites and continued expansion.

Goal 2: Increase the number of NBCTs serving as instructional leaders

Together, current and new partners will increase the number of NBCT instructional leaders in targeted districts, aiming to expand this group by 25 percent during the grant period. NT3 partners will work at the district level⁷ to increase the presence of NBCTs within sustained, formalized leadership roles that utilize their professional expertise to impact the teaching practice of other educators in their region. The table below summarizes strategies for achieving this goal.

⁷ NT3 partners have determined that a majority of decisions and processes related to instructional leadership happen at the local level. As such, state-level partners will identify at least one district partner for this work.

Table 2. Goal 2 Objectives, Outcomes, and Measures

Objective	Outcome	Measure
Goal 2: Increase the number of NBCTs in instructional leadership roles	– Across 10 districts, increase by 25% the number of NBCTs in identifiable instructional leadership roles, especially in high-need schools	% of NBCTs in identifiable instructional leadership roles
A: Increase the number of strategically designed and structurally supported leadership roles	– Roles address students’ learning needs – Roles are an integral and supported part of the leadership system	Number of instructional leadership roles created
B: Design selection processes for the identification of Board-certified instructional leaders	– System leaders recognize NBCTs as assets for instructional improvement – NBCTs are matched to suitable leadership roles	Percentage of matches that occur via a transparent and defined process
C: Strengthen the professional development of NBCTs as instructional leaders	– NBCTs develop effective general leadership knowledge and skills – NBCTs develop effective knowledge and skills specific to their roles	Percentage of NBCT instructional leaders who report they are well-prepared for their role

Because exemplars of high-quality instructional leadership systems are limited, partners are engaged in extensive development and testing for Goal 2. To facilitate efforts related to Objective A, current sites scanned instructional leadership roles within their local areas and are now working collectively to define positions for which NBCTs would be an asset. Sites will subsequently focus on improving hiring procedures and other job structures related to Objective B to ensure that NBCTs receive priority for these opportunities. Finally, to hone NBCT leadership skills, many sites have launched programs such as leadership conferences, per Objective C. Work on Goal 2 is still in its initial phases in the current NT3 community, but is proceeding steadily across all three objectives.

Goal 3: Increase the number of early career educators developing into accomplished teachers

Partners will design structures, policies, and programs to prepare early career teachers to build their practice to an accomplished level. They aim to improve teacher retention during the initiative by increasing the number of early career teachers ready to pursue Board certification in their fourth or fifth year of teaching by 25 percent in targeted districts. Table 3 below outlines the

initial theory of improvement that all sites share as they strive to achieve this goal.

Table 3. Goal 3 Objectives, Outcomes, and Measures

Objective	Outcome	Measure
Goal 3: Increase the number of early career educators developing into accomplished teachers	– Across 10 districts, increase by 25% the number of early career teachers ready to pursue Board certification in their fourth or fifth year, especially in high-need schools	Percentage of teachers who are ready for Board certification in year 4 or 5
A: Provide early career teachers with effective support	<ul style="list-style-type: none"> – Early career teachers work with an NBCT mentor or coach – Early career teachers engage in learning-centered conversations with NBCTs – Early career teachers study exemplars of accomplished practice with NBCTs 	Percentage of early career teachers supported by NBCTs
B: Institute the educator continuum as a commonly experienced career path	<ul style="list-style-type: none"> – Coherent program of study is established for early career teachers, with outcomes measured by performance assessments – Connections are established between pre-service and in-service assessments – Career entry is mediated through a type of residency / induction program 	Percentage of early career teachers who stay in teaching
C: Establish communities of professional practice	<ul style="list-style-type: none"> – Teachers have access to regular consultative feedback from peers – Collaborative model engages all stakeholders in early career teacher development 	Percentage of early career teachers receiving quality feedback

NT3 partners have chosen to structure Goal 3 activities around the National Board’s Five Core Propositions (See Appendix H.) because of their foundational role in describing accomplished teaching, and also because of the cohesive transition they provide from induction to National Board Certification. Similar to medicine’s Hippocratic Oath, the Core Propositions succinctly describe the meaning of accomplished practice and its commitment to student achievement. Goal 3 efforts will focus on providing early career teachers with the high-quality mentorship of NBCTs and meaningful development opportunities. Some sites plan to form or strengthen mentor-based induction programs that will provide early career teachers with the opportunity to take a formative look at their performance and develop a plan for professional growth; this process represents a first step toward professional reflection that is integral to

accomplished practice. For example, in San Francisco, partners are helping early career teachers ensure that students receive equitable learning opportunities. (See Case Study: San Francisco.)

As Section B (1) demonstrates, the goals, objectives, and measures that define the National Board's initiative are clearly specified, aligned, and measurable. They focus on recruiting, selecting, training, and providing professional enhancement activities for educators. Moreover, the processes used to select NBCTs for instructional leadership roles in Goals 2 and 3 will be rigorous and competitive, relying on evidence-based criteria that ensure those teachers possess the knowledge, skills, and dispositions to be successful in their leadership work. This initiative uses models of best practice, based on the accomplished practices of NBCTs, to increase the number of highly effective educators and improve student learning and achievement through the promotion of advanced certification (Absolute Priority 4).

B (2) A Comprehensive Effort to Improve Teaching and Learning

NT3 partners include ten groups of states and districts, each represented by a wide range of labor, management, and NBCT professionals. Table 4 below lists participating state-district partners. Where district partners have not yet been identified, they will be determined through a competitive selection process based on specific and rigorous criteria. In Kentucky, for instance, site participants include members of the Education Professional Standards Board, the Kentucky Department of Education, and the Kentucky Education Association. Floyd County (KY) Public Schools district is a partner in the initiative, with the superintendent participating in the statewide NT3 Advisory Council. The diverse set of participants at each site will enable the ten partners to establish a shared sense of investment in their region and to mobilize stakeholders within their states and districts to promote the initiative's educator career continuum.

Partners were identified by the National Board based on several key factors: (1) readiness

to undertake a comprehensive approach to improvement, (2) contribution of an identifiable strength to the network, and (3) conditions that signaled alignment between the site’s preexisting strategic priorities and the goals of NT3.

Table 4. State and District Partners (new partners in bold)

State	District
Alabama	<i>To be selected</i>
Arizona	<i>To be selected</i>
Illinois	<i>To be selected</i>
Kentucky	<i>To be selected</i>
Maryland	<i>To be selected</i>
New Mexico	Albuquerque Public Schools
New York	Schenectady City School District
North Carolina	<i>To be selected</i>
Washington	<i>To be selected</i>
	San Francisco Unified School District ⁸

State and district partners are dedicated to building on existing knowledge to develop strategies that they can share for the purpose of defining a coherent, professional career trajectory for teachers. Table 5 lists current sites’ improvement priorities aligned to the initiative’s goals. Through NT3, new partners will assess their system to determine priorities during the Initiation Phase. (See Section C (2) for Management Plan.)

Case Study: New York

As a direct result of NT3, New York has generated a 55 percent increase in the number of teachers demonstrating interest in National Board Certification. Of this year’s candidates, 40 percent teach STEM-related subjects. Building from successes in Washington and Arizona, New York is currently building on its momentum by hiring regional Ambassadors to develop recruitment plans and support candidate efforts throughout every region, including those previously underserved.

⁸ Note that San Francisco joined NT3 in 2013 as a standalone district partner. Given the strong local support for this work and progress to date, they will continue in that capacity.

New York will partner with the Schenectady City School District, a district where 82 percent of students live in poverty. The work will focus on promoting and supporting NBCTs as instructional leaders working to strengthen professional learning communities. The district plans to invite NBCTs onto Parent Engagement Teams to promote parental support for children's academic progress and to strengthen the home-school relationship. The potential here is particularly great since Schenectady is second to New York City in the number of NBCTs and 80 percent of its students receive free or reduced lunch. This district presents the opportunity to improve student where it is needed most through focused collaboration. Resulting insights will be of great value to other NT3 partners and, eventually, the nation as a whole.

B (3) Professional Development Services Leading to Improvements in Practice

Across NT3 sites, professional learning opportunities will provide the quality, intensity, and duration that educators need to promote teaching effectiveness and advance student learning. Activities will be designed keeping three components of this learning dynamic in mind: the needs of individual teachers and their students, the responsiveness of a career continuum that supports educators in different districts and states, and a cross-pollination of ideas that fosters effectiveness throughout the schools and classrooms of NT3 partners.

The careful alignment of need, response, and significance ensures that professional learning achieves a high level of quality, with the intensity and duration needed to address specific challenges and produce meaningful results. Communicating with teachers and students to find out what they need is the first step, as illustrated by one of New York's Goal 2 priorities: meeting with a high-need district to determine specific demands in that location. (See Table 5.) New York is working to build instructional leadership roles where NBCTs will support early career teachers to better understand the backgrounds and experiences of their students to best

Table 5. Priorities of Current Sites

	Goal 1: Increase the number of NBCTs	Goal 2: Increase the number of NBCTs in instructional leadership roles	Goal 3: Increase the number of early career educators developing into accomplished teachers
ABQ (NM)	Expand school-based recruitment, especially at Title I schools Engage principals at Title I schools in recruiting and supporting candidates	Conduct trainings for administrators on developing teacher leadership roles Conduct leadership trainings for NBCTs in instructional leadership roles	Support NBCTs to mentor early career teachers in high-need schools
AZ	Increase the number of NBCTs by focusing on school-based cohorts and Master Teacher-designated school districts	Collaborate with Master Teacher-designated schools to formalize instructional leadership roles for NBCTs	Create partnership between IHE and local districts to incorporate elements of certification in early career professional development
KY	Concentrate recruitment efforts in schools with no NBCTs, especially in high-need schools	Coach leadership teams to support NBCTs as instructional leaders Scale NBCT teacher leader cohort for teachers in high-need schools	Support NBCTs to mentor early career teachers in high-need schools Model the use of ATLAS, an online library of teaching cases of NBCTs in the classroom
NY	Develop an Ambassador program to recruit teachers in underserved and high-need schools	Work with a high-need school district to develop and support teacher leadership roles Conduct teacher leader trainings for NBCTs	Develop a resource center at SUNY Plattsburgh to foster a partnership between faculty and NBCTs. Focus on preparing NBCTs to support early career teachers
SF	Create support networks for National Board candidates Target recruitment efforts on teachers of ELL students, incarcerated youth, youth on parole, and at risk youth	Develop NBCT leadership opportunities aligned with core competencies and teachers' professional growth goals Support NBCT leaders in the development of leadership knowledge, skills, and dispositions	Strengthen induction program to prepare teachers to serve all students effectively, particularly those in high-need schools
WA	Engage in targeted outreach in high-need schools and among STEM teachers Develop a toolkit to ensure support facilitators have effective strategies and tools	Hold NBCT Leadership Conferences; prioritize teachers in high-need schools and STEM subjects Fund NBCT-led projects in STEM fields	Support teachers in high-need schools by ensuring that early career teachers are mentored by NBCTs

meet their learning needs. NBCTs are eminently capable of solving complex problems, one of the fundamental aspects of accomplished practice. Through NT3, NBCT instructional leaders will impart this expertise to their colleagues in high-need areas, in STEM subjects, and across NT3 sites.

Case Study: San Francisco

Partners in San Francisco are focusing their attention on the learning opportunities and professional support that early career teachers receive. They are strengthening coaching and mentoring through an induction program designed to prepare early career teachers for the diverse needs of their students, particularly in high-need schools. In alignment with the San Francisco Unified School District Strategic Plan, early career teachers will participate in differentiated professional development.

Novice teachers come to the classroom with varying types of experience, and they may or may not be equipped with the strategies, techniques, and communication skills they need to engage all of their students. The induction program aims to show novice teachers how to support their students as effectively as possible by being sensitive to the cultures and backgrounds that distinguish them. San Francisco's induction program is designed to help early career teachers appreciate their students' similarities and differences so teachers can provide them with equitable learning experiences.

NT3's focus on professional development across the educator continuum ensures that learning opportunities like the San Francisco induction program are not isolated events. Rather, partners understand that professional development must be ongoing, providing teachers with a cohesive experience that increases the depth and breadth of their expertise over time. As has been well documented, effective professional learning is job-embedded, content-focused,

student-based, context-specific, and sustained (Garet, Porter, Desimone, Birman, & Yoon, 2001; Guskey, 2003; Wei et al., 2009). By strengthening systems for educator development, NT3 is ensuring that teachers participate in professional learning that aligns with research-based attributes appropriate to their stage of professional growth. For example, an early career teacher may focus on building their skill sets during induction, while an accomplished teacher will reflect on their practice during National Board Certification. The collaborative structure of NT3 ensures that innovative ideas and best practices will be shared across all sites.

B (4) Preparing Personnel for Fields with Shortages

Across the nation, states and districts face the challenge of attracting and retaining effective teachers. STEM, ELL, and Special Education often prove to be the most difficult fields to find and retain accomplished teachers. The National Board has a strong record of promoting STEM education. Approximately 56,300 NBCTs are certified in a STEM subject, representing over half of all NBCTs nationwide. National Board Standards in multiple content areas support the Next Generation Science Standards and the Common Core State Standards, ensuring that NBCTs are well positioned to support their students' STEM education. By expanding NT3 to four new state-district partners, the initiative will continue increasing those numbers while expanding collaboration on the development of STEM-related structures, policies, and programs that will strengthen the career continuum for these sought-after teachers.

Across the nation, STEM and Career and Technical Education (CTE) teachers are frequently hired by industries that can offer more lucrative compensation packages. Partners across NT3 are concerned about their retention rates for STEM and CTE teachers. In some places, such as North Carolina, salary stipends for NBCTs present a substantial increase, providing a pathway for effective teachers to receive compensation sufficient to retain them in

the profession. Through NT3, North Carolina and others will capitalize on these policies to recruit more STEM and CTE teachers to pursue Board certification with the goal of addressing crucial personnel needs in their states.

Strategies to prepare, support, and retain effective teachers in ELL and Special Education are also a focus in NT3; they are discussed in more detail in Section B (5).

Competitive Preference Priority 3: Promoting STEM Education

According to the National Math and Science Initiative, only 44 percent of students are ready for college-level math and 36 percent are ready for college-level science (National Math and Science Initiative, 2015). To improve STEM learning outcomes, we need to provide more effective and relevant professional development for all teachers who teach STEM.

Often, elementary school teachers feel ill prepared to teach STEM. Research suggests that elementary school students learn mathematics better when their teachers have deep content and pedagogical knowledge (Hill, Rowan and Loewenberg, 2005). Recognizing this, Kentucky has made a strategic decision to create cohorts of elementary teachers who intend to focus on mathematics during the National Board Certification process. Partners have invited the Kentucky Center for Mathematics, an organization with expertise in research-based mathematics professional development, to lead these cohorts. This high quality support will allow teachers to hone their mathematics pedagogical skills and to more intentionally integrate mathematics instruction into the other subjects they teach. Principals in these schools will be well-positioned to identify teachers who, with the right supports, could lead mathematics instructional improvement in their schools or districts. Other partners are interested in how this could serve as a model to provide high quality STEM professional development to elementary teachers.

Providing high quality STEM content professional learning is also a need for many

middle and high school teachers. Partners in San Francisco discovered that middle school STEM teachers were hesitant to pursue Board certification due to low confidence in their content knowledge. In order to address this learning need, they are designing a professional development program to address teachers' content learning needs.

NT3 is already having an impact on STEM, with more than half of current candidates for Board certification teaching STEM subjects and with many more NBCTs already serving as instructional leaders supporting STEM teachers. Partners are eager to extend this impact. As one example, partners in Washington have infused a STEM theme in their upcoming conference for NBCT leaders to prepare them to support their peers. STEM teachers who attend that conference will be invited to apply for a \$5,000 grant to support STEM-focused teacher leadership in their schools and districts.

B (5) Serving the Needs of Disadvantaged Individuals and Competitive Preference Priority 4: Supporting High-Need Students

Too often, high-need students are taught by teachers that lack the preparation and support to serve them well. In high-need schools, teacher turnover can be great, professional culture weak, and student achievement persistently low (Borman & Kimball, 2005; Ferguson, 1998; Jacob, Vidyarthi, & Carroll, 2012; Kain & Singleton, 1996). Across sites, diverse groups of students facing disadvantages exist, all of whom deserve the opportunity to learn and develop the full potential of their talents regardless of their zip code, first language, socioeconomic status, place of birth or disability.

To address these challenges, NT3 partners are committed to growing the number of NBCTs teaching high-need students and deploying their expertise to strengthen teaching throughout their schools and districts. As described in the Evidence of Effectiveness section,

NBCTs are capable of improving student growth and achievement dramatically. Mounting evidence suggests that this impact compounds for students who need it most: NBCTs produce larger learning gains for students from low-income households and significant proportions of NBCTs concentrated in high-need schools magnify this impact further (National Board, 2012; Goldhaber & Anthony, 2007).

Current partners completed site-wide scans to determine the geographical distribution of NBCTs in their regions and to devise contextualized plans for recruiting and supporting candidates where there are not yet NBCTs. In doing so, they realized that the most remote and disadvantaged communities were typically the regions with the lowest number of NBCTs. Kentucky, for example, quickly discovered rural, remote parts of the state in which there are few, if any, candidates.

First, to ensure that remote areas in Kentucky that have high concentrations of students living in poverty have at least one NBCT, partners there are working with school administrators to conduct outreach to teachers. Then, to provide candidates in remote areas with quality support, partners designed a virtual learning community for teachers. This strategy has spread, as other NT3 sites are designing virtual trainings for candidates and candidate providers, making Board certification more accessible to a greater number of teachers and thereby providing more students access to accomplished teaching.

Among current NT3 partners, an estimated 60 percent of certification candidates teach in high-poverty schools. Through NT3, other states and districts have learned about Washington's incentives to NBCTs who teach in high-need schools. The state began offering a \$5,000 stipend to NBCTs in high-need schools, increasing numbers there from 79 to 746 in three years. This shifted the proportion of NBCTs in these schools from 12 percent to almost 32 percent, with

nearly 60 percent of high-need schools gaining at least one NBCT, compared with only 20 percent three years earlier (Elfers and Plecki, 2014).

The expansion of this initiative would allow NT3 partners to further increase the number of accomplished teachers working with high-need students. By expanding from Albuquerque to the rest of New Mexico, partners there will reach rural students, English learners, and students who are members of Indian tribes, all of whom are significant proportions of the statewide student population. In an effort to end the school-to-prison pipeline for students who live in poverty, San Francisco will recruit teachers of incarcerated youth, youth on parole, and at-risk youth to pursue board certification.

To improve learning outcomes for English learners (ELLs), a number of NT3 partners are recruiting more teachers of ELLs to pursue board certification. This will raise academic outcomes for English learners while addressing a field with increasing personnel shortages. For example, partners in San Francisco plan to recruit more bilingual teachers and tailor candidate support programs to meet the needs of teachers of ELLs and teachers who are bilingual. In addition, New York has recently revised policies so that achieving board certification in English as a New Language serves as pathway to an ELL endorsement for current licensed teachers.

In schools nationwide, many teachers in other certificate areas instruct ELLs and students with special needs, and these educators frequently express the desire for professional development to help them meet their students' needs more effectively. A professional development school-based program in Illinois, for instance, offers all teachers the opportunity to collaborate with specialists and improve the pedagogical strategies and techniques they use with ELLs and students with special needs in core classes. Principals have responded enthusiastically to the program, which will serve as another exemplar of best practice for the NT3 community.

These strategies extend to work to spread the instructional expertise of current NBCTs, especially for early career teachers (Goals 2 and 3). Kentucky has begun to do this by expanding their teacher leadership cohort, Classroom Teachers Enacting Positive Solutions (CTEPS). CTEPS provides sustained professional learning experiences for NBCTs to address barriers to improving student learning. Next year, all of the teachers selected for CTEPS will work in Title I or priority schools and will specialize in isolating and solving the unique challenges faced by students in these environments. In Arizona, partners are working with a district in which all students receive free or reduced lunch, 90 percent are identified as members of a minority group, and 30 percent are English language learners. Under the guidance of an NBCT instructional leader, other NBCTs will be trained to serve as instructional coaches, helping teachers in the district create vibrant learning environments that will improve student outcomes.

Increasing the number of Board-certified teachers (Goals 1 and 2), coupled with a dedicated effort to support early career teachers of high-need students (Goal 3), will allow NT3 partners to improve the structures, policies, and programs that help effective teachers serve high-need students equitably.

Section C: Management Plan and Personnel

C (1) Qualifications of Project Personnel

NT3 relies on the strength and support of a centralized network Hub to take action and achieve change. The National Board is uniquely positioned to serve as the Hub for NT3 due to its skill and expertise in the field of educational facilitation and management. For over 27 years, the NBCT-led organization has promoted accomplished teaching and advanced certification, developing a comprehensive professional infrastructure to advance this cause. To accomplish the goals of NT3, the National Board leverages the power of its 50 NBCT Networks, coalitions of

Board-certified teachers that advocate for a coherent career continuum grounded in National Board Certification. NT3 extends this infrastructure, building a robust network of NBCT Networks, state and local education agencies, and labor partners working in concert to advance collective goals.

A team from the National Board is responsible for day-to-day operations of NT3, with support provided by project sponsors, a technical council, as well as project evaluation experts from AIR. The scope of each role and a description of relevant experience are given below. (See Appendix A for resumes.)

- The Project Sponsors from the National Board provide vision and strategic expertise to guide the initiative, ensuring its pertinence to broader currents of education reform and innovation. They will provide their expertise in shaping strategies for implementation, evaluation, dissemination, and scaling. As President and CEO, Ronald Thorpe is a renowned thought leader on the professionalization of teaching. Executive Vice President Peggy Brookins, NBCT (Adolescent and Young Adulthood Mathematics), brings deep understanding of STEM teaching from her work as co-founder of the Engineering and Manufacturing Institute of Technology. In addition, Brookins is a highly regarded leader regarding equity issues in education, in particular noted for her work with the White House Initiative on Educational Excellence for African Americans.
- The Project Director ensures there is alignment between NT3 goals, objectives, and available resources, providing the Hub with executive oversight and tactical guidance. As Senior Vice President of Strategy and Policy, Joe Doctor has served as the Project Director since 2013. He has extensive experience working with stakeholder groups to improve educational outcomes, especially for low-income and minority youth, having

worked with school districts, state departments of education, and foundations during his seven-year tenure with the Bridgespan Group, a nonprofit strategy-consulting firm.

Doctor has a STEM-related background, with an undergraduate degree in Biomedical Engineering from Yale and a doctorate degree in education leadership from Harvard.

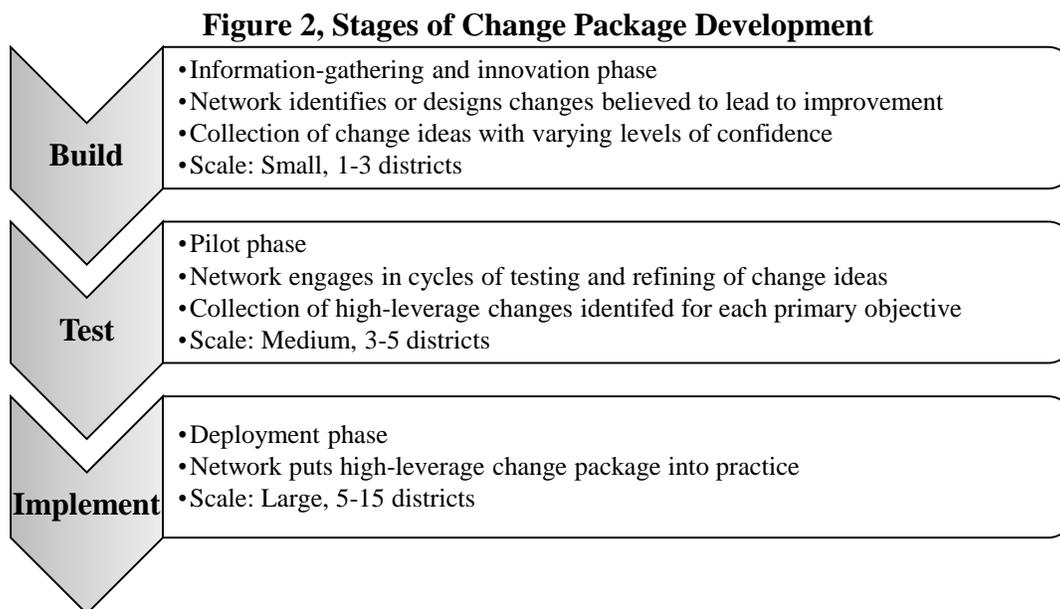
- The Improvement Advisor is responsible for network outcomes. Trained in improvement science theory and methods by the Institute for Healthcare Improvement, National Board Director of Policy and Partnerships Lisa Clarke is an NBCT (Adolescent and Young Adulthood Social Studies-History) with knowledge and skill in coaching teams to advance outcomes. Prior to joining the National Board, Clarke was the Team Lead for the U.S. Department of Education Teaching Ambassador Fellows, working on policy related to teacher leadership, professional development, and school turnaround. Recognized as the 2011 World Educator by the World Affairs Council for her work to improve global education instruction in high-need schools, Clarke has master's degrees in Adolescence Education and Social Studies as well as Women's and Gender Studies.
- The Hub Leader manages the overall network, coaching site teams and facilitating NT3 sessions. Trained in network development during a residential fellowship at the Carnegie Foundation for the Advancement of Teaching, Emma Parkerson is also a graduate of the Institute for Healthcare Improvement's *Breakthrough Series College*, a professional development program that instructs directors of collaborative improvement communities. Parkerson has worked across both core products and field-building efforts at the National Board for seven years, with a primary focus on NT3 since 2013. She is a Senior Manager at the National Board, with a Project Management Professional (PMP) credential.

- The Hub Manager is responsible for NT3 administration, which includes maintenance of the project timeline and management of contracts and finances. Laura Benedetto serves as the Hub Manager. Experienced in coordination of program and staff administration, Benedetto worked as Administrative Assistant for External Relations and Assistant to the CEO and COO at the National Board. Benedetto has worked on NT3 since 2013.
- The Analytics Manager will work with the Improvement Advisor and the Hub Leader on the regular collection and analysis of NT3 data for continuous improvement. This position is currently open and undergoing active recruitment.
- The Technical Assistance Advisory Council is a group of researchers and practitioners who are experts in teacher leadership and education systems and provide practical wisdom based on their field experience. The Council confers with teams to provide technical leadership on issues surrounding targeted structures, policies, and programs for improvement. Current members include: Jill Harrison Berg (Chair), Director of Leadership Support and Organizational Learning at Teachers21; Christopher Lloyd, NBCT, Vice President of the Montgomery County Education Association; and Eric Hirsch, Founding Executive Director of EdReports.org.
- The Carnegie Foundation for the Advancement of Teaching provides strategic guidance and capacity building support for the NT3 Hub related to network development and improvement science. Leaders from the Foundation will work with the Improvement Advisor to co-design an Improvement Science Workshop for new NT3 partners.
- Project Evaluators are research and measurement experts who help the Hub meet project evaluation requirements. AIR has decades of experience in this area and has supported the Hub in this role since 2013. See the Staffing Statement in Appendix K.

C (2) Management Plan

NT3 builds upon the creative and collaborative work of many to accelerate and integrate changes into varied partner contexts (Bryk et al., 2015). As described in Section A (3), NT3 is intended to result in a set of strategies and usable knowledge for dissemination to other states and districts. These strategies and knowledge are collectively called a **change package**, a term from improvement science. Reference Section D (3) for more about dissemination beyond NT3.

Across the three project goals, presence of exemplary systems and evidence to support changes is quite varied. As such, NT3 will work toward each project goal as separate but connected work streams. For each goal, sites will participate in a collaborative improvement process built from a proven model in healthcare called the *Breakthrough Series Collaborative*. The model supports sites to leverage existing evidence to build, test, and implement a change package. Described in Figure 2, these stages of development represent accruing confidence in the changes and, therefore, the scale at which they will be deployed.



Work to increase the number of NBCTs (Goal 1) and NBCTs in instructional leadership roles (Goal 2) is already underway as many sites are testing changes and gathering information. Work

toward Goal 1 will launch at an advanced phase, however, as extensive research has been required to identify systems successfully capitalizing on instructional expertise of NBCTs. It is anticipated that instructional leadership work will still be in a build stage when this extended work begins, with 1-3 districts participating. Focused improvement of systems supporting early career teacher development will launch anew under this proposal. This staged deployment is described in the Management Plan (Table 6).

There are six core components to the *Breakthrough Series Collaborative* model, pictured in Figure 3 below. Together, these activities comprise the engine to accelerate improvement in the state and district systems.

The work towards each project goal begins with an **Expert Meeting** to understand successful models and strategies that may be integrated into the change package. In parallel, new sites and new members of current sites will participate in workshops to build their capacity in improvement. Subsequently, sites convene five times, or every six months, to anchor and accelerate learning and make adjustments to change packages. These sessions are called **Learning Sessions**. Each Learning Session has three key objectives: (1) foster cross-site relationships, (2) deepen understanding of changes and share successes, and (3) plan site priorities for the next Action Period.

The Hub Leader and Improvement Advisor will work with sites at Learning Sessions to create plans for accomplishing Objectives and Outcomes in the next **Action Period**. During the Action Period, sites test the change package using the Plan-Do-Study-Act (**PDSA**) method. This routine is important not only to ensure that practitioners continuously build on existing knowledge, but also to facilitate documentation and spread of promising ideas. The Hub Leader is responsible for managing sites' completion and understanding of reporting, then, together with

Table 6: Management Plan

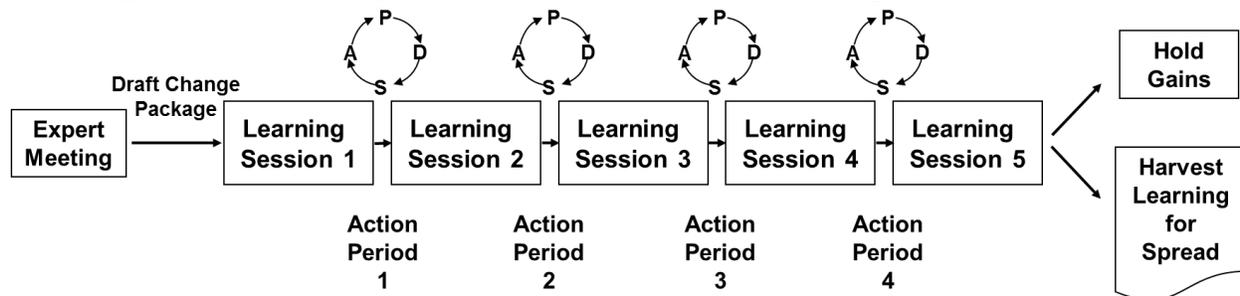
Activity	Owner	2015-16				2016-17				2017-18			
		4	1	2	3	4	1	2	3	4	1	2	3
Initiation Phase													
Support new sites to identify and onboard key staffing	LC												
Site Director Meeting to build relationships of site leaders across the network	EP												
Improvement Science Workshop to equip site leaders with knowledge in improvement methods	LC												
Pre-conference attached to Learning Session in February 2016	LB												
Milestone: New Sites Formed, Trained, and Launched													
Goal 1: Increase the number of NBCTs													
Support local action through analysis of monthly reporting, improvement coaching, data analysis and reporting, and monthly network-wide meetings	LC	Test				Implement				Hold Gains			
Host Learning Sessions to facilitate cross-site teaching, learning from TA Council expertise, and editing of the change package (February and October)	EP												
Site Visits for monitoring and targeted coaching and support	LC												
Milestone: Change Package Tested and Implemented in Sites													
Goal 2: Increase the number of NBCTs in instructional leadership roles													
Launch change package with convening of pilot sites	EP												
Support local action, as with Goal 1	LC	Build				Test				Implement			
Host Learning Sessions, as with Goal 1	EP												
Site Visits for monitoring and targeted coaching and support	LC												
Milestone: Change Package Tested and Implemented in Sites													
Goal 3: Increase the number of early career educators developing into accomplished teachers													
90-Day Research Cycle to scan the field for promising practices and identify experts	EP												
Expert Meeting to harvest knowledge about Goal 3 and shape the change package	EP, LC												
Milestone: Change Package Developed													
Launch change package with convening of pilot sites	EP												
Support local action, as with Goal 1	LC	Build				Test				Implement			
Host Learning Sessions, as with Goal 1	EP												
Site Visits for monitoring and targeted coaching and support	LC												
Milestone: Change Package Tested and Implemented in Sites													
Sustainability Phase													
Create online platform for sharing change package and associated tools and products	LB												
Disseminate findings through conferences, social networks, etc.	JD												
Launch campaign to spread change packages, especially for Goal 1, to other high-potential sites	EP												
Milestone: New States and Districts Take Up Change Packages													
Project Evaluation (See Section E(3) for Management Plan)													

the Improvement Advisor, review reports and provide targeted coaching to each site.

After report analysis, the Hub Leader hosts a monthly Network Meeting open to all sites, with curriculum planned by the Improvement Advisor. These monthly meetings allow sites to share tests and other learning, as well as provide an opportunity for learning from the TA Council. The Improvement Advisor and Hub Leader also make twice-yearly visits to each site in order to observe work on project goals in the context of each site, as well as interact with site team members who are unable to attend in-person meetings.

While the Hub will coordinate knowledge management throughout the initiative, there will be a formal period after the final Learning Session for **harvesting learning** in preparation for dissemination beyond NT3 partners. (See Section D, Sustainability.) Additionally, after the final Learning Session, the Hub will continue to monitor site data for six months, a period designed to ensure that systems **hold gains** realized through participation in the initiative.

Figure 3. Breakthrough Series Collaborative Model for Improvement in Systems



C (3) Resources to Carry Out the Project

NT3 staff and advisors possess the expertise required to accomplish project goals, objectives, and outcomes. The management plan described in Section C (2), built from a proven model for accelerating improvement in healthcare with decades-long results of success. The model relies on high-impact collaborative strategies that will support partners to achieve the project goals on time and within budget. As the initiative requires frequent in-person meeting time, sufficient

planning and financial resources have been allocated accordingly. The National Board's experience convening educators to produce the profession's standards provides a foundation and convening power to ensure these events are effective. The resources requested for this work are sufficient and reasonable to carry out this initiative. In total, \$19,376,851 is requested to support the activities across ten NT3 sites and deliver the outcomes specified for this initiative. See the Budget Narrative for additional detail.

Competitive Preference Priority 2: Improving Efficiency

NT3 is designed to yield approaches to system improvement that are cost effective. During the period of federal financial assistance, sites will receive funding to redesign current teacher growth systems. In the long term, efforts to strengthen policies and structures for teacher growth will increase student achievement and reduce teacher attrition, resulting in more strategically spent dollars and savings. For instance, by increasing the numbers of NBCTs (Goal 1), NT3 will generate efficiencies of student learning that should reduce expenses for remediation programs, summer school, and other services. If translated into teacher-salary costs, this results in an average savings of \$9,330 per NBCT. This is doubly so as NBCTs stay in the profession longer (NRC, 2008). These ongoing savings are expected to lead to further sustainability and expansion of the initiative after the period of federal financial assistance.

Systems will also realize savings from increased numbers of NBCTs in instructional leadership roles and, therefore, strengthened retention of accomplished teachers in the profession. According to the National Commission on Teaching and America's Future, a departing teacher in a mid-sized urban district costs approximately \$15,000 per teacher (Barnes, Crowe, & Schaefer, 2007), a cost that reaches spends \$2.2 billion per year on a national scale (Haynes, 2014). More importantly, beyond financial cost, high teacher turnover negatively

impacts professional culture and student achievement (Ingersoll, 2001; Jacob et al., 2012). By capitalizing on the instructional expertise of NBCTs, especially in school-based mentoring and induction programs, sites will systemically lower rates of turnover among teachers (Guarino, Santibanez, & Daley, 2006).

Section D: Sustainability

D (1) Building Capacity and Yielding Results

NT3 has been designed from the start to yield sustainable progress that will continue beyond the period of federal assistance through changed systems, built capacity, and transformed cultures.

The continuous improvement approach facilitates the process of tailoring system changes to the educator continuum so that they are meaningful and successful within local contexts, marrying the imperative to address local issues with the power of working within a national cooperative. In each site, NT3 has assembled stakeholder groups that represent labor, management, and practitioners in districts, and states. Since 2013, work with current partners has focused on helping them see the value of the improvement approach and building their capacity to implement it in their site. New partners will receive the same support. NT3 will lead to sustainable improvements because it has changed not only the policies and programs that support educator development, but also the processes and procedures by which teachers, administrators, and labor leaders pool their resources, share their views, reach mutual solutions, and assess their improvement efforts.

The initiative as a whole will produce more than 10,000 NBCTs, with concrete examples of their leadership impact across ten locations. Beyond that, the commitment of professionals to the three project goals will endure beyond the period of federal assistance, as the goals are clearly aligned with local priorities and resources. The ongoing professional discourse and

support generated by these educators to strengthen the coherent teaching continuum will continue to improve teaching effectiveness and increase student achievement long after the initiative ends.

D (2) Yielding Findings and Products

This initiative will yield findings and products valuable to other states, districts, and organizations as they work to improve teaching effectiveness by transforming their structures, policies, and programs supporting teacher growth. In particular, the strategies and data collected as part of a change package for each project goal will be documented and disseminated by the National Board for adaptation and use by other states and districts seeking similar improvements in teaching practice. These materials will be disseminated through an online knowledge management platform and supported by case studies from NT3 sites and accompanying evidence from the implementation study conducted by AIR. As described previously, AIR will measure the impact of partners' strategies, including measures on National Board Certification, teaching effectiveness, instructional leadership capability, and student achievement.

In addition, this initiative will yield products to support other organizations and individuals in leading transformative change in education. During the Initiation Phase, the National Board will partner with the Carnegie Foundation for the Advancement of Teaching to develop a tailored workshop to train practitioners and system leaders in continuous improvement methodology. Marrying the Carnegie Foundation's existing curriculum for such workshops with National Board's Five Core Propositions and professional standards, this workshop will result in material with value to other organizations interested in new, focused, and measurable ways of solving problems.

D (3) Disseminating Results and Outcomes

The National Board will design a public-facing, online knowledge management platform where all results, change packages, and associated case studies will be stored. This system will be directly connected with existing channels, including National Board's Web site, blog, and in direct communications with more than 110,000 NBCTs. In addition to the dissemination of project results and outcomes, the National Board will make project evaluations broadly available through formal and informal mechanisms.

While making information available is crucial, it is of even greater importance to proactively engage educators and system leaders in dialogue about and use of these new resources. Toward that end, the National Board will proactively disseminate these findings to both internal networks and external audiences through a nationwide campaign. The National Board will catalyze the scale-up of Board certification, especially related to Goal 1, by broadly disseminating the most successful strategies through toolkits and guidelines for local adaptation that make this important system improvement work straightforward and accessible for leaders and practitioners nationwide. The National Board will learn from models and best practices of effective campaigns in healthcare, politics, and social service. One model is the 100,000 Lives Campaign that successfully reduced avoidable deaths in hospitals by 100,000 in 18 months.

A primary audience for the campaign will be the National Board's extensive infrastructure of NBCT Network affiliates. There are 50 networks nationwide, each with a ready set of NBCT advocates to be deployed in their locales. Every year, the National Board convenes these organizations for an event called the National Board Academy. The Academy agenda is centered on the teaching career continuum, a natural venue to spread the results of NT3.

In addition to the campaign, the National Board will share findings through more

traditional methods including conferences, social networks, and other connected learning opportunities with the field. The National Board has already presented about the work of NT3 at major conferences in 2015, including the Teaching & Learning Conference, the Carnegie Foundation Summit on Improvement in Education, and the American Educational Research Association's Annual Meeting. This kind of knowledge sharing with the field at large will continue through and beyond 2018. Both site and organizational partners have agreed to share results and outcomes through their Web sites, publications, and other communication vehicles. For instance, NT3 is a primary example featured in the Carnegie Foundation's signature training about network development, which is attended by a new group of system leaders each year.

NT3 will have a lasting influence on theory and knowhow about improving systems for teacher growth and development. By producing sustainable results across sites while providing critical resources to individuals and organizations at large, this effort will support the advancement of teaching and learning across the country.

Section E. Project Evaluation

E (1) Methods of Evaluation

Leveraging work already underway with sites participating in the fiscal year 2013 SEED grant evaluation, this evaluation will answer additional research questions directly aligned with National Board's three goals and nine objectives. (See Section B (1) for objectives.) By aligning research questions with goals and objectives, the evaluation will focus on the measurement of the extent to which various processes contribute to attainment of each of the three goals. For example, for Goal 2, the evaluation will measure the extent to which sites are successful in formalizing leadership roles, filling those positions with NBCTs, and ensuring capacity of NBCTs filling those positions. This comprehensive approach to studying processes underlying

the pursuit of each goal will enable a deeper understanding of findings of impact on school, teacher, and student outcomes. The research questions as aligned with the initiative’s proposed goals and objectives are presented in the following paragraphs.

The first goal focuses on increasing the number of NBCTs through recruitment and support processes, with an emphasis on high-need schools and in STEM subject areas. Table 7 specifies the research questions for each objective of Goal 1 and includes a comprehensive research question aimed at measuring the extent to which Goal 1 is accomplished.

Table 7: Goal 1 Objectives and Research Questions

Goal 1: Increase the number of NBCTs, especially in high-need schools and STEM subjects	
Comprehensive Research Question 1. To what extent do states and districts meet their site-specific goals in increasing the number of NBCTs, especially in high-need schools and STEM subjects?	
Objectives	Research Questions
A: Stimulate state and district investment in Board certification	2. To what extent do states and districts demonstrate support for and invest in Board certification?
B: Recruit Board certification candidates	3. To what extent do sites implement new methods for increasing teacher pursuit of Board certification?
C: Strengthen candidate support	4. To what extent are candidate support programs used and useful to teachers pursuing Board certification?

The second goal is focused on leveraging the expertise of NBCTs in instructional leadership roles to advance local improvement priorities. Table 8 details the objectives and research questions for Goal 2.

Table 8: Goal 2 Objectives and Research Questions

Goal 2: Increase the number of NBCTs in instructional leadership roles	
Comprehensive Research Question: 5. What is the impact of NBCT instructional leaders on: a) school climate, b) teacher practice, c) teacher retention, and d) student academic achievement?	
Objectives	Research Questions
A: Increase the number of strategically designed and structurally supported instructional leadership roles	6. To what extent do sites increase formalized leadership roles that align with site-specific needs?
B: Design selection processes for the identification of Board-certified instructional leaders	7. To what extent are newly designed processes for selection of instructional leadership roles successful in matching Board-certified teachers with roles?
C: Strengthen the professional development of NBCTs as instructional leaders	8. To what extent are NBCTs supported in establishing themselves and growing as instructional leaders?

The third goal focuses on supporting early career teachers, especially those in high-need schools, in a way that their teaching aligns with standards of accomplished practice, which will then position them strongly to develop into accomplished teachers and pursue National Board Certification. The research questions for Goal 3 are specified in Table 9.

Table 9: Goal 3 Objectives and Research Questions

Goal 3: Increase the number of early career educators developing into accomplished teachers	
Comprehensive Research Question. 9. To what extent do sites meet their site-specific goals to increase the number of early career educators ready to pursue Board certification in their fourth or fifth year of teaching?	
Objectives	Research Questions
A: Provide early career teachers with effective support	10. To what extent do sites support novice teachers' entry into the teaching profession, especially teachers in high-need schools?
B: Institute the educator continuum as a commonly experienced career path	11. To what extent are sites successful in establishing a common trajectory towards the development of accomplished teaching practice?
D: Establish communities of professional practice	12. To what extent is a collaborative model of early career teacher support established and executed?

The evaluation will use and build on the evaluation work underway for the SEED grant awarded to the National Board and its partners in 2013. For example, the ongoing evaluation of Goal 2 investigates the process of formalizing instructional leadership roles and the proximal outcomes of NBCTs in these roles. The proposed evaluation would, in addition, allow the evaluators to examine both proximal and distal outcomes of this work, including the impact of NBCTs in instructional leadership roles on school, teacher, and student outcomes.

The proposed evaluation is a mixed-methods, multi-site evaluation, including observational, quasi-experimental, and experimental designs that reflect and accommodate differences in the processes implemented by the sites to reach their individual goals. These research designs are discussed more fully in Section E (4). The evaluation will provide frequent formative feedback and summative information, including estimates of effects, enabling the National Board, its partners, and stakeholders to assess both implementation quality and

feasibility, and impact of the initiative. (See Section E (3).)

E (2) Objective Performance Measures

Using a combination of extant and newly collected data, the evaluation will provide precise quantitative measurement of key elements of implementation and outcomes. Qualitative data will enable deep investigation into facilitators of and barriers to implementation within and across sites. Data will be collected on each performance measure (as specified in the tables in Section B (1) and comprehensive research question (as specified in the Tables in Section E (1)). Additional data will be collected to provide contextual understanding around meeting or failing to meet each objective. For example, the performance measure for Goal 2, Objective A is “number of instructional leadership roles created.” The evaluation will collect data on the number of instructional leadership roles throughout the grant period; however, data will also be collected that addresses implementation of the objective, for example, the strategies used to increase the number of those roles, whether the roles are aligned with site-specific needs, and whether sites are receiving enough support to create and sustain those roles.

Extant data will be used to measure implementation as well as outcomes, and will include state and district documents (e.g., district policy documents, state certification policies); district data on characteristics of highly effective teachers (NBCTs and non-NBCTs); student and school demographic data; student performance data (e.g., standardized scores, graduation rates); teacher performance data (e.g., value-added scores, evaluation scores); and National Board Certification candidate data. AIR will work with each partner and the National Board to set up a system, or continue using current systems, for the collection and transmission of extant data.

Newly collected data will come from instruments designed specifically for this initiative. Key stakeholders will be surveyed and/or interviewed twice per year. These stakeholders will

include site representatives, Board-certification candidates, and NBCTs who are instructional leaders. When surveys and interviews cannot be conducted with the entire population of interest, they will be conducted with a stratified random sample from the sites. These samples will be selected to ensure a broad representation of characteristics of participants and implementation. For example, the evaluators might draw a sample of teachers that includes both successful and unsuccessful National Board Certification candidates. Selecting samples that span a range of conditions will allow for deeper exploration into differences between successful implementation models and less successful models, enabling partners to make specific and targeted modifications to their individual implementation models. Data collection instruments (i.e., surveys and protocols) will be carefully constructed to avoid overburdening participants and will be linked to one another to ensure that multiple perspectives are collected on all constructs of interest. When appropriate, the evaluators will use surveys and protocols developed for the 2013 SEED grant evaluation and new protocols will be developed as needed, for example, to examine successes and challenges associated with the implementation of Goal 3.

E (3) Periodic Assessment of Progress

The value of an evaluation is connected intrinsically to the success of its communication and reporting strategies. In this initiative, the goal is to design the communication and reporting strategies (and, to the extent feasible, data collection and analysis schedules) so that findings and recommendations are reported as soon as appropriate, enabling partners to address challenges as they emerge.

AIR will provide evaluation briefs summarizing emergent findings midway through each year of the initiative (January 2016, 2017, 2018) and at the end of each academic year (July 2016, 2017, 2018). Providing feedback midway and at the end of each academic year will enable

the National Board and partners to make modifications as needed to the supports offered throughout the project period, in a way that aligns with the flow of the academic year and budget cycles. AIR will also provide annual reports on programmatic impacts at the end of Years 2 and 3. These year-end annual reports will be completed as early as possible (mid to late summer), given the availability of relevant outcomes data. In addition to providing formative and summative feedback to the National Board and partners, AIR will communicate study findings through presentations at professional conferences that reach both researchers and practitioners⁹ and publications in peer-reviewed journals. AIR will also work with the National Board to submit the annual performance report data. Table 10 shows the timeline of AIR evaluation activities and communication.

Table 10. Timeline of Evaluation Activities

Evaluation Activities	2015-16					2016-17					2017-18													
	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S
Project set up																								
Finalize site specific evaluation design	x	x	x																					
Assist sites in designing implementation data collection systems	x	x	x																					
Assign treatment and control groups (where necessary)	x	x																						
Instrument development and refinement			x	x						x	x										x	x		
Data Collection																								
Collect pre-intervention data		x																						
Collect extant implementation data			x	x						x	x										x	x		
Conduct interviews				x						x											x			
Administer Surveys																								
Analysis																								
Communications																								
Learning sessions					x						x											x		
Conference calls	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Findings briefs				x																				
Annual reports																								
Annual performance data reports																								
Presentations and publications preparations																								

E (4) Evidence about Project Effectiveness

Research Designs

AIR proposes several designs for this mixed-method evaluation, including experimental, quasi-

⁹ Conferences could include those by the American Educational Research Association, [the Society for Research On Educational Effectiveness](#), the Association for Supervision and Curriculum Development, and the Council of Chief State School Officers, among others.

experimental, and observational designs. Multiple designs ensure that the evaluation is sensitive to each partner's plan and history of participation in NT3.

A **randomized controlled trial (RCT)** will be used to examine the impact of NBCTs in instructional leadership roles on school, teacher, and student outcomes (Goal 2). Some locations, such as San Francisco and Washington, have expansive teacher leadership programs that would allow for the examination of both proximal and distal outcomes of the impact of teacher leaders. For example, San Francisco's Beginning Teacher Support and Assessment induction program provides mentorship to approximately 300 new teachers each academic year, with approximately 150 instructional coaches, both NBCTs and non-NBCTs. AIR will work with the district on randomizing coaching to examine program impact on teacher and student outcomes. Other sites have large numbers of NBCT instructional leaders that will allow for randomization of teachers to receive coaching from instructional leaders who are NBCTs, instructional leaders who are not NBCTs, or to not receive coaching. These RCTs will be conducted in such a way as to ensure the studies meet WWC standards without reservations by taking steps to keep overall and differential attrition low.

AIR will use quasi-experimental designs (QED), such as **propensity score matching (PSM)** studies to examine the effect of cross-site or site-specific interventions where randomization is not possible. For example, to study the impact of the intervention on increasing the numbers of NBCTs (Goal 1), a QED would match Board-certification candidates in a support program to candidates who are not. While an RCT experimental design would allow for stronger causal inferences, QEDs are often more feasible to implement, put much less burden on participants, and can still yield credible estimates from studies that can meet WWC standards with reservations.

Observational research (Cochran, 1983) will be used to answer research questions for which neither identifying a comparison group nor controlling for confounding variables is currently feasible. For example, this design will apply to the analysis of state and district policy documents to examine the extent to which they demonstrate support of Board certification. The observational research design does not allow for causal inference. Instead, AIR will use this design to describe and document key elements of implementation at each site.

Quantitative Analysis

Quantitative data will be used to answer research questions pertaining to program implementation and impact on school, teacher, and student outcomes. Several analytic methods will be used to examine these data as outlined below.

Estimating programmatic impact on schools (e.g., climate), teachers (e.g., understanding of professional standards, change in classroom practice), and students (e.g., academic performance) is of central importance to this evaluation. The evaluation will use observations of teacher practice, value-added scores, teacher evaluation scores, and student standardized test scores as outcome measures. Outcomes from the sites in which RCTs are conducted will be evaluated by fitting a series of multilevel models that calculate both Intent to Treat (ITT) and Treatment on the Treated (ToT) estimates. ITT estimates can be interpreted as the effect of having been assigned to treatment/services (e.g., being assigned to an NBCT instructional leader). ITT estimates, however, do not account for dropout or crossover status, which are likely to occur in real-world program implementation. Therefore, the research team will also calculate ToT estimates. The ToT models estimate programmatic impact for only those participants who actually received treatment. One common way of estimating ToT impacts is through the use of an instrumental variables (IV) approach, in which a probability associated with receiving

treatment (e.g., coaching by an NBCT instructional leader) is used as a treatment indicator in place of a binary condition indicator, also known as a two-stage least squares regression. (Angrist, Imbens, & Rubin, 1996). These estimates also are important to the assessment of the initiative's impact because they provide the programmatic effect on the outcome measures in the best-case scenario of perfect subscription.

In some cases, the evaluation will include use of a PSM design to create comparison groups, account for selection bias, and, ultimately, create more precise estimates of impact than other approaches might yield. Selection bias arises because individuals that self-select or are selected non-randomly to participate in a program may be systematically different from those who are not selected to participate. These differences can bias estimates of program effectiveness. PSM addresses this selection issue using data on participant characteristics to estimate the likelihood that an individual *would* participate in the intervention under study. It is limited in that only data on observed characteristics are used to model these likelihoods and any systematic bias in unobserved characteristics will remain. However, by modeling selection into the intervention directly (i.e., calculating propensity scores), the analysis can be done against a comparison group that includes individuals of similar observable characteristics to those individuals who participate.

In addition to regressions that estimate impacts, the research team will also explore the relationship between level of implementation (as measured through survey construct scale scores), dosage (e.g., increase in NBCTs and NBCT instructional leaders at a school), and outcomes. Models examining these factors will be used to examine the *added effect* of having increases in both NBCTs *and* NBCT instructional leaders at high-need schools, provided this condition occurs.

To examine the validity and reliability of quantitative response data, surveys will be examined using the Rasch rating scale model (Wright & Masters, 1982). When the data fit the Rasch model, the results are easier to synthesize and interpret than single-item reporting of frequencies. The resulting scale scores can be used in parametric inferential models such as those discussed above. For example, the performance measure for Goal 1, Objective B is the “number of active candidates pursuing at least one component of [Board certification].” Surveys may be designed to ascertain the degree to which teachers feel ready to pursue certification or feel motivated to do so, and Rasch scale scores derived from survey data could be used in a regression model to estimate the relationship (across or within sites) between teacher readiness, motivation, and any observed increase in the number of teachers pursuing certification.

Qualitative Analysis

The qualitative analysis of the interview data will be systematic and consistent across analysts and over time. Several methods will be used to increase accuracy and trustworthiness of analysis, including the development and use of written coding structures based on individual site initiatives, rigorous training of data analysts, multiple-coder rating of a subset of transcripts, and spot checks of coding of a second subset. Research questions pertaining to implementation for all three goals will in part be answered using qualitative data. For example, the research team may interview candidates receiving support and those who are not to determine the usefulness of the candidate support program.

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