

Turning Schools Around: The National Board Certification Process as a School Improvement Strategy

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Teacher learning: A glance inside the National Board Certification Project

What kind of writing activities does Juan need to improve his writing?... Why does he omit sounds when writing? How can I help him organize his ideas?" A first-grade teacher, Nancy, who participated in the National Board Certification Project asked these questions about her student, Juan, and about her own teaching. Looking carefully at Juan's work in order to describe how she was supporting his learning prompted these questions. Although this teacher had taught for fourteen years, this was the first time she had watched videos of herself teaching. The project provided opportunities to look closely at her students' work with her colleagues. Through her participation in the project, Nancy experienced what can happen when teachers make their teaching practice public. Nancy described some of the insights she had. She talked about the importance of getting "to know your class and the needs of your students, because if you are aware of that, if you are really aware of that, it's easy for you to find ways to differentiate in the class and to help [students].... Now when I plan my lessons, I really think of my students, what they need... what else can I give them to achieve the [learning] goal?" Nancy learned to think deeply about the opportunities she is providing for her students to learn in her classroom every day.

Purpose of the Project

The purpose of this project was to examine the National Board Certification process as a potential strategy for supporting the improvement of schools where large proportions of students score below grade level on standardized tests. We refer to these schools as "low-performing."¹ The pursuit of National Board Certification is typically approached as an individual endeavor and receipt of certification is by and large considered an individual accomplishment. Given a growing body of research² that shows students taught by National Board Certified Teachers (NBCTs) perform better on outcome measures than those students who are not taught by NBCTs, we wondered if supporting groups of teachers in low-performing schools to pursue NB Certification would have positive effects on student learning and on school culture.

¹ Such schools are also often termed "turnaround" schools. By focusing on the singular measure of student test scores, both terms fail to describe the ways such schools often support students and their families and are actually succeeding by other measures in their efforts to educate students.

² For example, see Cavalluzzo et al., 2014; Cowan & Goldhaber, 2015; or Salvador & Baxter, 2010.

That is, rather than look at the pursuit of certification as an individual competition, look at it as a collective professional development strategy.

Findings from a small principal interview study (Dean & Jaquith, 2015) suggested that using NB Certification as a form of professional development for teachers in school was a promising approach to improve student learning outcomes. In that study, we interviewed ten principals who reported using the National Board Professional Teaching Standards (NBPTS) Take One! Program as professional development for their teachers. These principals, located in eight states, reported that their use of the NB Certification process contributed to developing a sense of professional community in their schools as teachers worked together differently than they had in the past to improve teaching and examine its effects on student learning. In these schools, students' standardized test scores also improved. The type of professional community that these principals described developing in their schools—where teachers regularly examine student work for evidence of learning—resembles professional communities described in other research that has been shown to be a strong predictor of instructional practices that are associated with student achievement gains (e.g., Seashore-Louis, Leithwood, Wahlstrom, & Anderson, 2010). Given the positive effects of using the NB Certification process in some schools, we wondered if providing certification support to groups of teachers in other schools could function as a lever for improving teaching practice and altering the professional learning culture in these schools. We particularly wanted to know if involving groups of teachers from the same school in the certification process would create a school effect—a change in the overall culture and learning climate of the school—and thereby help improve low-performing schools.

With these larger goals in mind, in 2013 we initiated a professional learning intervention to support cohorts of teachers within the same school to pursue National Board Certification together. We wanted to locate this intervention in chronically low-performing schools and study its effects. This project coincided with the state's adoption of the Common Core State Standards (CCSS) and a significant restructuring of the National Board Certification process. Given these changes, finding low-performing schools where large groups of teachers could commit to participate in our time-intensive intervention was challenging. Ultimately, we identified three such schools in two districts where groups of teachers volunteered to participate and where principals supported their involvement in this project.

We found that teachers in these schools made significant changes to their instruction in ways that increased or improved learning opportunities for their students. We also found some evidence that the teaching cultures were positively affected by this professional learning intervention. Given the two-year duration of our study, we cannot know the extent to which these changes became rooted in classroom and school practices. The institutional rootedness of these practices would make them more likely to endure and thereby positively affect student learning over time.

The discussion that follows documents the intervention and its initial effects in two historically low-performing schools that served high need, low-income students of color in two different districts. We draw lessons from our analysis and make recommendations for state and local policymakers who may want to consider using the NB Certification process as an improvement strategy for low-performing schools.

What We Know about the Effects of National Board Certification on Teaching

Evidence that National Board Certified Teachers Improve Student Learning

Researchers have found achieving NB Certification is associated with an increase in student learning with the largest effect sizes reported for students who receive free and reduced lunch (Goldhaber & Anthony, 2007). When compared to their colleagues who have not attempted board certification, NBCTs are more effective at increasing student learning on standardized tests (Cavalluzzo, Barrow, Henderson, 2014; Cowan & Goldhaber, 2015) and end-of-course examinations (Salvador & Baxter, 2010). These quasi-experimental studies have included random assignment (Cantrell, Fullerton, Kane, & Staiger, 2008), comparisons of teachers who certified to those who did not (Cavalluzzo, 2004), as well as comparing NBCTs to their colleagues who were eligible to attempt certification (Clotfelter, Ladd, & Vigdor, 2007).

Improvement to Teacher Practice

Research has also examined the effects of the certification process on teaching practice. Three studies, in particular, examined changes in teachers' practices (Cavalluzzo, Barrow, Henderson, 2014; Darling-Hammond & Atkin, 2007; Lustick & Sykes, 2006). In these studies, NBCTs reported that the requirement of closely examining and modifying their teaching based on what students know and are able to do improved their teaching (e.g., Yankelovich Partners, 2001). For example, David Lustick and Gary Sykes (2006) randomly assigned 120 science teachers who wanted to become NBCTs to two groups—one group participated in the National Board Certification process and the other group did not. The researchers then interviewed teachers in both groups using an interview protocol that required respondents to address scenarios modeled after the NB Certification process. These scenarios included how a teacher might: teach a significant scientific concept over time; design lessons to support students' scientific inquiry; facilitate whole class discussion; and consider ways to incorporate community, professional development, and leadership to support student learning. Trained scorers then assessed participating teachers' responses. Researchers found that those teachers who participated in the NB Certification process had a greater understanding of teaching science than the comparison group.

The findings from David Lustick and Gary Sykes (2006) point to changes in teachers' practice as a result of participating in the certification process. The study design, however, prevented researchers from determining the actual changes to teachers' practice. Another study, conducted by Misty Sato, Ruth Wei, and Linda Darling-Hammond (2008), sought to understand how the National Board Certification process, as a professional learning opportunity for teachers, "can potentially improve everyday formative assessment practices in the classroom" (p. 670). Researchers recruited secondary science and math teachers to pursue certification and then randomly assigned 16 participants to two groups. One group of teachers participated in the certification process, while the other group delayed participating in the process for one year. Data collection took place over the course of three years: the year before, during, and after certification. The study concluded, "It appears teachers' classroom teaching practices can be influenced by professional activities that allow them the opportunity to closely examine their own practice" (p. 694). They also found that teachers "reported that the requirements of analyzing their classroom practice with a focus on assessment as defined by the National Board Standards introduced them to new ways of viewing the role that assessment plays in their everyday instructional interactions" (p. 694). These findings indicate ways that the certification process can influence teaching.

Professional Learning within Schools

Continuous, school-based professional learning for teachers can also improve individual teacher practice (e.g., Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009). Research on professional learning that is shown to improve teaching has the following characteristics: it is intensive, ongoing and connected to practice; it focuses on student learning and addresses the teaching of specific curriculum content; it is aligned with school improvement priorities and goals; and it builds strong working relationships among teachers and provides time to collaborate (e.g., King & Bouchard, 2011; Newmann, King, & Youngs, 2000; Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009; Robinson & Timperley, 2007). Yet, a recent study of 100,000 teachers across 34 jurisdictions around the world found that teachers reported few opportunities to engage in such meaningful collaboration (Burns & Darling-Hammond, 2014).

Opportunities to participate in meaningful and sustained professional learning experiences within school are relatively rare. However, when these learning experiences are carefully designed, they have the potential to develop professional communities of learners among educators, which in turn can help shift professional culture in schools (e.g., Stoll, Bolam, McMahon, Wallace, & Thomas, 2006; Hord, 2004; Jaquith, 2015). Evidence suggests that when teachers collectively share and examine artifacts of their practice with each other, where the aim is to improve student learning, professional communities begin to emerge (e.g., Borko, Jacobs, Eiteljorg, & Pittman, 2008; Bryk, Sebring, Allensworth, Easton, & Luppescu, 2010). When

teachers engage in professional learning that makes a difference to students' learning, they are often involved in conversation with colleagues about evidence of learning and the efficacy of particular teaching methods (e.g., Timperley, 2008; Horn, Kane, & Wilson, 2015). As Helen Timperley (2008) has suggested in her research on evidence-informed conversations about teaching and learning, a critical habit of mind is needed: Teachers must have a desire to find out how to improve instructional practices for those students currently underserved by our education system and to take the risk to have existing assumptions about these students and how to teach them challenged (p. 77).

In the analysis that follows, we present evidence of how teachers can be supported to develop this habit of mind and the skill of connecting teaching practice to evidence of student learning through the use of the NB Certification process. We also present evidence about how supporting a cohort of teachers from within the same school to participate in the NB Certification process may help traditionally low-performing schools develop their capacity to improve teaching and, thereby, student learning.

This project contributes to the research literature on NB Certification as professional learning. This study examines professional learning experiences designed to support certification among cohorts of teachers within the same schools and considers how this process contributes to teacher learning. This study asks the following questions:

1. In what ways, and to what effect, do teachers in schools with low student achievement improve their instructional practice through the use of the National Board Certification process as embedded within the project intervention?
2. What roles do support providers (located within and outside the school) have in stimulating and supporting these changes?
3. In what ways, if at all, do participating schools develop organizational cultures that support continuous teacher learning?

The National Board Certification Process as an Improvement Intervention

The National Board Certification Process

Receiving National Board Certification distinguishes a teacher as accomplished and excellent. The pursuit of NB Certification involves teacher candidates in a rigorous process of examining their own teaching practice by considering the quality of teaching through the lens of the NBPTS. These standards articulate the features of accomplished teaching. The National Board Standards reflect its Five Core Propositions:

1. Teachers are committed to students and their learning;
2. Teachers know the subjects they teach and how to teach those subjects to students;
3. Teachers are responsible for managing and monitoring student learning;
4. Teachers think systematically about their practice and learn from experience; and
5. Teachers are members of learning communities.³

These propositions are explained in depth in *What Teachers Should Know and Be Able To Do*.⁴ Teachers who pursue NB Certification select a certification area from among 25 areas, such as math, science, language arts, music, art, physical education, or exceptional needs. Many certification areas have two developmental levels: early and middle childhood (ages 3–8) and early adolescence through young adulthood (ages 11–21).

The certification process typically takes one to three years. During this process, teachers collected evidence of their accomplished teaching in four areas: (a) analyzing student work, (b) building a learning environment, (c) designing lessons that integrate learning across content areas, and (d) working with the broader school community and families to support student learning. At the time of this study, assessments of candidates' performance were based on three sources of evidence:

³ See <http://www.nbpts.org/five-core-propositions> http://boardcertifiedteachers.org/sites/default/files/General_Portfolio_Instructions_FINAL.pdf

⁴ See www.nbpts.org/sites/default/files/what_teachers_should_know.pdf

samples of student work, video recordings of classroom practice, and documentation of accomplishments outside the classroom. In addition, teachers undertook a content knowledge assessment at a testing site near them.⁵ Evidence was submitted in the form of responses to four portfolio entries, the requirements for which varied slightly by certification area.⁶ Candidate portfolios are submitted to NBPTS in May to be scored for evidence of accomplished teaching according to NBPTS. Trained scorers read, score, and provide feedback on candidates' portfolio submissions—and certification decisions are announced the following fall. Candidates who pass certification become NBCTs for 10 years. Those who do not achieve certification during their initial attempt become advance candidates and are eligible to “re-take any combination of portfolio entries and/or assessment exercises in the two subsequent candidate cycles” (NB General Portfolio Instructions, p. 2).

The NB Certification Project Intervention

Our project was designed to seize and capitalize upon the learning opportunities embedded in the certification process, particularly the opportunities to learn about teaching and the relationship between teaching and student learning. In addition to engaging individual teachers in the pursuit of certification, this project intervention consisted of three additional components intended to promote the pursuit of certification as an opportunity for school, as well as individual, learning. These additional components were:

1. Organize a group of teacher candidates from within the same school to pursue certification together (a school cohort);
2. Provide expert NB support to each school cohort in the form of a support provider from Stanford's National Board Resource Center (NBRC);
3. Provide on-site support to candidates in two ways: a formal support role for an NBCT at the school and monthly certification support meetings for candidates facilitated by the NBRC support provider in collaboration with the school support provider.

As an intervention, our project was interested in learning the ways that the certification process enriched teaching, regardless of whether or not a teacher candidate actually certified. We were also interested in studying how this particular use of the certification process affected school culture, if at all.

⁵ The NBPTS Certification process underwent a significant change in 2014. For instance, now candidates submit three portfolio entries, and certification is granted for 5 years instead of 10.

⁶ For a complete description of the entry requirements and their variation across certification area, see Appendix A.

Our Study

To study the intervention, we documented the candidates' work and the support they received during the 2013–14 school year. During this time, we also administered a survey to project participants. We collected field notes from their monthly support sessions and recorded selected conversations between candidates and support providers.

In fall 2014, we interviewed a representative sample of teacher candidates from each school who participated in the project, and we analyzed the candidates' NB portfolio submissions, including the video recordings of their teaching and student work samples. We interviewed the on-site support providers and principals at each school and the NBRC support provider. What follows is our analysis of what happened in these schools: the extent to which changes to teaching practice and to professional culture occurred. We also describe how the nested contexts of each school and district seemed to influence the nature and extent of these changes.

The Participating Schools, Districts, and Teachers

School Selection: Hollow Tree and Central Elementary⁷

Hollow Tree and Central Elementary were two schools that met our initial school selection criteria:

1. Fewer than half of the students were proficient on state English language arts and math standardized exams;
2. Over half the student population qualified for free and/or reduced lunch and spoke English as a second language;
3. Each school had a large proportion of teachers on staff interested and willing to pursue NB Certification;
4. Each school had a principal who agreed to support teachers' participation in the project; and
5. Each school had an NBCT on staff who was willing to participate in the project as an on-site support provider to candidates and also work with the NBRC "expert" support provider to do so.

The schools were located in two mid-size urban districts. We name these districts East and West. East District served approximately 30,000 students; West served approximately 50,000. As is typical of urban districts, both districts had diverse student bodies (see Table 1).

There were also important differences between the two districts. They differed with

Table 1: Demographics of Participating Students

Student characteristics	West District	East District
	Percentage	Percentage
Race/Ethnicity		
Latino	26	52
Black	8	3
Asian, Filipino, Pacific Islander	45	13
White	13	25
Multi-racial	4	7
Declined to state	5	
Free or reduced-priced lunch	61	45
English Language Learners (ELLs)	49	25

⁷ All district, school, and educator names are pseudonyms.

respect to: the supports and resources they provided to encourage teachers to pursue NB Certification; the degree to which the district’s instructional approach cohered with the approach to teaching promoted by NBPTS; and the number of NBCTs in each district (see Table 2). These differences influenced the ways teachers at Hollow Tree and Central Elementary schools experienced this project in several important ways.

West District provided numerous incentives and supports to teachers pursuing NB Certification—including the allocation of personnel to recruit and support teacher candidates within the district. The district’s financial incentive attracted some Hollow Tree candidates: “One reason [to pursue National Boards]... is because I could make more money.” However, in a survey completed by nine of ten participating Hollow Tree teachers, the primary reasons they gave for participating in the project were: to improve their teaching practice (7 of 9) and to improve learning outcomes for students (5 of 9). By comparison, the support given to teachers in East District was minimal. Teachers in East District also reported a lack of formal recognition of teachers who certified. For example, an 11-year East District veteran said, when a teacher at Central certified in 2013, “there was no recognition, no email sent out” by district officials. This teacher said the district’s stance toward NB Certification had recently changed as a result of “new people coming in and new priorities coming in.” Recounting this change, she said: “When I first started with the district, [achieving certification] was something you would hear through district email or it made it onto the district website.” Interestingly, in East District, which had fewer incentives, the primary reason Central teachers gave for participating in the project was to improve learning outcomes for students (8 of 9). Like their Hollow Tree counterparts, most Central teachers (7 of 9) also said they wanted to improve their teaching through participation in the project.

Table 2: District Incentives and Supports for Pursuing National Board Certification

District Incentives	West District (Hollow Tree)	East District (Central)
Stipend awarded to NBCTs for duration of certification	\$5,000 annually	\$2,500 annually
Teacher stipend for working in difficult-to-staff schools	\$2,000	None
Provides supports to NB candidates	District has a part-time NBCT staff person to recruit teacher candidates within the district and provide supports to candidates	None
Formal recognition of NBCT status	Superintendent honors new NBCTs at an annual ceremony	None
Number of NBCTs	208	20

Given the different incentive structures in the two districts, it is not surprising that in 2013 West District had 208 NBCTs while East District had only 20 NBCTs. Our analysis of the intervention effects in the two schools considers how these differences in district cultures may have influenced teachers' learning opportunities.

The Teaching Context at Hollow Tree School

Located in West District, Hollow Tree is a K–8 school in a diverse, working class neighborhood. Approximately 400 students attend Hollow Tree (see Table 3). The majority of students were Latino (59%) and almost half of the students (49%) were English language learners (ELLs).

Approximately 34 teachers taught at Hollow Tree, and unlike in some schools with high minority populations, most educators chose to work there. One candidate said,

I think teachers who work at my school choose to work there because they want to work with this population of students—most of our school is on free and reduced lunch. Most of our students are Latino or Black. Most of our students are EL students.

The number of English language learners in the school, as well as the 9% of students who have diagnosed learning or emotional needs, could make teaching at Hollow Tree challenging. Based on 2012–13 scores from California's standardized exams, approximately half the students at Hollow Tree performed at or above grade level on English–Language Arts (ELA) and math assessments. Scores were much lower for black students (33% proficient or above in ELA; 46% proficient or above in math) and for students with disabilities (17% proficient or above in ELA and 24% proficient or above in math).

Historically, Hollow Tree was a “persistently low-performing school” according to Principal Hartford. Teacher turnover in the school was a chronic problem: “nine to ten teachers [left] every year.” Hartford said this meant Hollow Tree could not “really gain any academic traction.” As a chronically under-performing school, Hollow Tree became a recipient of a federal School Improvement Grant. Per the grant stipulation, a new prin-

Table 3: Hollow Tree School Demographics (2012–13)

Student characteristics	Percentage
Race/Ethnicity	
Latino	59
Black	15
Asian and/or Pacific Islander	11
White	5
English language learners (ELLs)	49
Diagnosed learning or emotional disability	9
Free and reduced lunch	72

principal (Hartford's predecessor) was hired in 2010 with a district mandate for change. That principal dictated and enforced many changes at the school during her three years, including the implementation of a weekly "results-oriented cycle of inquiry" (ROCI). According to Hartford, who became principal in 2013, "Test scores did go up, but the community piece really suffered." Teachers did not feel they had a voice in making curriculum and instructional decisions.

Hartford said that after three years of using the ROCI process with significant support from coaches, Hollow Tree teachers still had not internalized the process of examining evidence of student learning as a way to guide their instruction. Hartford attributed this failure in part to teachers' limited conception of student data: Hollow Tree teachers "only know data in a certain way" and that way is standardized test score data. Hartford said,

It's not really student work. It's not really about what the kids are able to do and produce. It's more about, "Here are my kids in this band. Here are my kids in this band. Here are my kids in this band." Which is one form of data, and it tells you something, yes. I'm not saying it's not important. But you have to dig deeper than that at a certain point.

Another concern of Hartford's was teachers' dependence upon others to guide and structure their work:

They've always had a coach to facilitate a grade-level meeting. They've always had people prepare their data.... The work has to be internalized by the people who do the work, not by the folks who support you in doing the work.

At the outset of this project in 2013 and with only three months on the job, Principal Hartford was in the beginning stages of trying to lead a culture shift at Hollow Tree that would fundamentally alter the way teachers thought about and conducted their work.

A significant "small shift" Hartford had made toward her vision was to ask teachers to use their weekly collaboration time to conduct a ROCI using data that *they* selected and viewed as meaningful—such as a writing assessment that the teachers designed and used in their classrooms. By asking teachers to look at student data other than standardized test scores, Hartford thought teachers would become better able to use the ROCI process to strengthen their teaching. Her belief was "when [teachers were] using something that [they] see as valid, the [ROCI] process would flourish." She was surprised that after three months time "it just hasn't." Hartford realized that the teachers at Hollow Tree needed a lot of support to recognize evidence of learning beyond test scores and to make effective use of formative assessments. In this way, the NB intervention reinforced Hartford's learning goals for Hollow Tree teachers.

As West District and Hollow Tree School, in particular, moved away from using a scripted curriculum and relying exclusively on published texts, Hartford said she saw some teachers struggling: “If you’ve never taught in a different way other than using a scripted curriculum, you will struggle. You will struggle a lot. And [teachers] are struggling.”

The Teaching Context at Central Elementary

Located in East District, Central Elementary is a K–5 school with approximately 450 students. Most of the students were low income (85% free and reduced lunch) and the student population was predominately Latino (87%) with 64% of students designated English language learners (see Table 4). Unlike Hollow Tree, this school had relatively little teacher turnover. Teachers had taught at Central for an average of 10 years.

Like Hollow Tree, Central Elementary also had a new principal, Claudia Castanza, who in 2013 was in her second year at the school. Castanza said she came to Central “to work with a low-income Hispanic population.... I wanted to make a difference and inspire other families because my parents were immigrants. I’m first-generation.” Her background as “a bilingual teacher” brought a particular expertise to this school with a large ELL student population. She described the two Spanish bilingual programs she had inherited at Central and indicated that the programs were significantly different. In one program, Academic Language Acquisition, 70% of instruction was conducted in Spanish until students entered third grade when instruction gradually switched so that English became the language of instruction in fourth grade. The other bilingual program, Structured English Immersion, used English as the primary language of instruction with structured English language development and language acquisition strategies. Castanza said that before she arrived the information provided to parents about the language programs was inadequate. She was troubled by the practice of asking parents to choose a program on “the first day of school [based on] a brief description.” More troubling was a rumor that student placement “was based on surnames.” This year she said, “We were able to educate parents about the choices.” Castanza described the school’s outreach to parents:

We started educating parents as soon as they registered. We contacted them and started giving them a background of the different programs and the different choices. Now they’re able to make more of an educated decision about their child’s academic career.

Table 4: Central Elementary School Demographics in 2013

Student characteristics	Percentage
Race/Ethnicity	
Latino	87
Black	1
Asian and/or Pacific Islander	8
White	2
English Language Learners (ELLs)	64
Free and reduced lunch	85

Castanza's actions to educate parents show that she regarded parents' ability to make informed decisions about their children's education as important and that she saw parent education as a school responsibility.

Overall, student performance at Central Elementary in English Language Arts was lower than the district average in 2012–2013 (41% students were proficient in ELA as compared to 57% in the district). This performance reflected a trend in East District where a persistent performance gap existed between students of various racial/ethnic subgroups. For example, third-grade students' reading proficiency scores for White and Asian students were 37% higher than their Latino peers in 2012. To address this performance gap, in 2011 East District adopted Explicit Direct Instruction (EDI). EDI is an instructional practice in which declarative and procedural knowledge is taught through three instructional modes: explaining information, modeling a process for students, and providing a "demonstration through the use of physical objects to advance students understanding of the lesson."⁸ During the 2011–2012 school year, East District trained all math and English teachers to deliver EDI. East District administrators expected all teachers to use the EDI approach in their classrooms and a component of each teacher's evaluation was based on incorporating elements of EDI during lessons.

Principal Castanza said part of the reason she accepted the job at Central was that she "really liked the strategic plan that was being put in place here [East District]." She described the district curriculum as "a specific instructional framework that's based on both direct instruction and gradual release." Principal Castanza called it a "beautiful instructional framework" and reported, "teachers have had massive professional development" on it. Castanza described the instructional approach this way:

It starts with orientation, with explicit objectives, and then the presentation of the material, and then highly structured practice, followed by collaboration. They make sure that groups of students are working in collaboration and are able to use their oral language together, and then during highly structured practice, teachers identify students who need additional supports.... It's a framework that's fluid, so teachers use their best judgment to know, are [students] ready to go on to the next step? Do I need to go back here to reteach, because they just didn't understand it the first way I taught it? There's a lot of focus on the instructional framework here in [East District]. They say it's the "[East District] way." It's all based on best practices.

Describing how the district curriculum is enacted at Central Elementary, she said:

⁸ Explanation of EDI is taken from publicly available district PowerPoint slides created by the Curriculum Services Department in 2011.

There's a big focus on language supports throughout the day, not just English language development, but throughout the whole day, providing sentence frames and language scaffolds. And with Common Core, being able to explain how they solved a problem using language. If you talk to our students, you'll see that's one of their struggles, how to articulate thinking and reasoning. We're really focused on that.

At the same time that Castanza talked about her support for EDI, she also communicated reservations some district officials had toward district teachers who had become NBCTs. Castanza said, "Usually when you have your National Boards, it's seen in high regard." However, she said, in East District "it's not seen as such." The primary reason Castanza thought certification was held in low regard was "some situations where there've been National Board teachers in this district who are not effective in the classroom. At some point they got their National Boards and had evaluations that were not superstar evaluations." Castanza, who was relaying hearsay, could not provide any specific information about why NBCTs lacked "superstar evaluations" but she knew discussions about increasing the number of NBCTs in the district was a "sensitive" topic.

Principal Castanza also described introducing a "coaching model" at Central, where teachers decide "what they would like to focus on... [and] then the coach facilitates conversations and dialogue, and they plan a lesson together." Castanza said sometimes the coaches will "record the teacher or record students, so when they're having the debrief, they can go back and see what they were doing. I feel like coaching's been very powerful." Castanza described this as a change from the previous year when the coaches spent a lot of time with her looking at "summative data," standardized test data, and the district's "early literacy test." Through the coaching model, Castanza was beginning to introduce teachers to the practice of examining their instruction.

Project Participants

Hollow Tree Elementary had 10 teachers participate in the project in 2013–14. This represented more than a third of the 28-person staff. At the time, the school had five NBCTs on staff and of these four were newly certified in 2013. Four of Hollow Tree's NBCTs chose to provide on-site support to their colleagues during the first year of this project. Hollow Tree teachers prepared portfolio entries for the following certification areas: Literacy (5), Exceptional Needs (4), and Mathematics for Early Adolescence (1). Four of these 10 teachers received certification in 2014.

At Central Elementary School, initially, 21 teachers out of a staff of 30 expressed interest in the NB Certification project. However, when the project actually began, the number of teachers was reduced to 11. This represented about one third of the staff. Of these, six teachers submitted portfolio entries in the following certification

areas: Early Childhood Generalist (3), Middle School Generalist (1), English as a New Language (1), and Literacy (1). In 2014, none of the Central teachers received full certification; most had decided to submit only one or two of the four required entries. However, all six teachers were designated advanced candidates and four resubmitted portfolio entries the following year. In 2015, one of these teachers certified. There were two NBCTs on staff at Central Elementary in 2013. One agreed to participate in the project as the on-site support provider. She also volunteered her time to support other NB candidates in the district and received financial support from the local teacher's union to do so but not any release time.

How Participants Learned and the Effects on Their Teaching

The Intervention

The differences in the instructional approaches valued in the two schools and districts, as well as the available National Board expertise, influenced the way the project played out in each school. Nevertheless, both schools experienced positive outcomes:

1. Teachers became more open to public examination and critique of their teaching practice;
2. Teachers made changes to their instructional practices that seemed to increase students' opportunities for learning.

What follows is a discussion of how participating teachers in both schools changed their instructional practice through their participation in the NB Certification process as part of this project intervention. We combine our analysis of the opportunities for teacher learning that the project afforded with a discussion of how these experiences affected teaching and, thus, students' opportunities for learning. Participating teachers at both schools reported that their teaching practice improved as a result of participating in the NB Certification process and the monthly project support sessions. A close look at the portfolio entries these teachers submitted in May 2014, as well as follow-up interviews with seven of these teachers the following school year, indicates that Hollow Tree and Central Elementary teachers⁹ made intentional adjustments to their teaching to support students' learning.

There were two categories of changes that teachers at Hollow Tree and Central made to their teaching practice that increased the likelihood for student learning:

- Teachers looked more closely at what their students did and said and consequently got to know their students' strengths, interests, and needs better;¹⁰
- Teachers became better able to design instruction that met the particular strengths, interests, and needs of their students.

⁹ Hollow Tree teachers' names start with letters A–F; Central teachers' names start with letters M–T.

¹⁰ See Dimensions of Knowing Students graphic organizer introduced to project participants in Appendix A.

These changes were often intertwined and mutually influencing. Typically, teachers made adjustments to their instruction or noticed that adjustments were needed after they looked closely at what their students were doing and tried to find evidence of student learning. Sometimes, close inspection of an instructional practice led a teacher to realize that the teaching did not allow students to develop or demonstrate their understanding. In addition to these noticeable changes, teacher candidates at Hollow Tree were found to have made a third change: They broadened their conception of what assessments could look like and, in so doing, began to gather multiple forms of evidence of student learning using a variety of formative assessment methods. This change aligned to Principal Hartford's goal.

All teachers in the study indicated that the changes “to their practice” came about through their participation in the project in three ways: preparing portfolio entries, learning with and from school colleagues who also participated in the project, and receiving support from NB support providers. Each of these experiences gave teachers opportunities to closely examine instructional practice and the resulting student learning, as well as to identify missed opportunities for learning. In combination, these activities helped Hollow Tree and Central teachers consider the effects of their teaching as well as the particular strengths, interests, and needs of their students. This often collaborative examination of teaching and learning helped them to grow as teachers and refine their practice. The discussion that follows offers an analysis of how the particular project activities, including the requirements of the NB Certification process itself, contributed to candidates' insights about and ultimate adjustments to their teaching. Examples of the sorts of specific instructional changes that Hollow Tree and Central teachers reported making and which were evident in their NB portfolio submissions are woven through this discussion.

In the final sections, we consider the role the professional development providers had in stimulating and supporting these changes and the manner in which the project played out in the different school contexts. Knowing that “professional learning is strongly shaped by the context in which the teacher practices” (Timperley, p. 6),¹¹ we discuss the relationship between the school and district context and teachers' opportunities for learning through the project intervention. Early indicators of initial changes to the teaching cultures in these two schools are offered.

Preparing NB Portfolio Entries

By design, the NBPTS portfolio entries require teachers to document and analyze their teaching for evidence of student learning and accomplished teaching performance. Portfolios, therefore, require candidates to submit records of teaching practice in the form of samples of student work and two 15-minute video recordings of

¹¹ Available at: <http://www.ibe.unesco.org/publications.htm>

their instruction. For example, here are the directions for submitting Portfolio Entry 1 for Early Adolescence Mathematics certification:

Entry 1: Developing and Assessing Mathematical Thinking and Reasoning In this entry, you choose two instructional activities and two student responses to each activity that demonstrate how you are able to design a sequence of learning experiences that builds on and gives you insight into students’ conceptual understanding of a substantive idea in mathematics, within the context of instruction that enhances students’ abilities to think and reason mathematically. You also submit a Written Commentary that provides a context for your instructional choices and describes, analyzes, and reflects on your teaching.¹²

To determine what counts as evidence of accomplished teaching performance, candidates must study the NBPTS standards and select examples of their performance that provide evidence of these standards. For example, according to the NBPTS publication, *What Teachers Should Know and Be Able To Do*, teachers are expected to appreciate how knowledge in their subjects is created, organized, and linked to other disciplines (p. 10). The NBPTS elaborates upon this expectation:

Physics teachers know about the roles played by hypothesis generation and experimentation in physics; mathematics teachers know the modes of justification for substantiating mathematical claims; art teachers understand how visual ideas are generated and communicated.... Many special education teachers have a slightly different orientation—focusing on skill development as they work to help moderately and profoundly handicapped students achieve maximum independence in managing their lives. (p. 10)

The NBPTS further states:

Understanding the ways of knowing within a subject is crucial to the NBCT’s ability to teach students to think analytically.... Teachers must possess such knowledge if they are to help their students develop higher-order thinking skills—the hallmark of accomplished teaching at any level. (p. 10)

The NBRC director, Sandy Dean, said she tells candidates, “You’ll never be everything that’s in those standards. But you’ve got to strive to get there, and you always get a little better at it.”

¹² For the requirements for other certification areas and entries, see Appendix B.

Analyzing Student Work

The task of preparing a portfolio entry in itself, particularly the expectation to analyze student work, provided an opportunity for participants to look closely at what students were doing on a particular task and to examine their instruction in relation to students' demonstrated understanding. As part of the certification process, teacher candidates in our project often conducted close observations of their focal students. They paid attention to the effects their instructional moves had on students' opportunities for learning, and they looked for evidence that learning had occurred. Through this process of looking closely at students' behavior and work samples, teachers at both Hollow Tree and Central reported making various adjustments to their teaching to better support student learning. For example, Brad from Hollow Tree and Olivia from Central described insights they had about challenging students, as well as realizations that emerged about designing instruction to meet the particular needs of these students.

Brad analyzes students' math problems and notices language barriers. Brad refined his teaching of mathematics from his close analysis of two middle school students' work samples. He selected focal students who were native Spanish speakers and recently "reclassified as English speakers." Each student, he thought, also struggled with mathematical concepts. Brad described one student, Jonathan, "As one of the most frustrating students I have in mathematics...[He] is way too cool for school." He said his other student, Crystal, "misses school for health reasons" and the previous year had completed an Individual Education Plan in reading.¹³ Each student presented particular teaching challenges for Brad. As the certification process prompts, Brad selected samples of their work to analyze for evidence of their learning. He selected a work sample in which students were expected "to model a system of equations" (see Figure 1).

Figure 1

Math Task:

Name: _____

You go to a specialty dealership. They sell used go-carts and bicycles there. You know that they have 54 total wheels in the shop. You also know that there are 21 seats. Can you find out how many go-carts and bicycles there are in the shop with just this information? Show your work! (go-carts have 4 wheels and 1 seat, bicycles have 2 wheels and 1 seat)

¹³ Individual Educational Plans are developed for students with designated learning disabilities.

At first Brad thought the difficulties these students were having with this problem stemmed entirely from a lack of mathematical understanding. Commenting on Jonathan's work, Brad writes:

He drew a picture to figure out how many are go-carts and how many were bikes.... We see a bare minimum of work on this paper.... He doesn't even write a total for each; he has just drawn a picture.

Initially, Brad concluded that Jonathan "is not confident thinking algebraically about this problem. His starting place is a very basic approach." However, after Brad spent more time analyzing Jonathan's work sample and Crystal's work sample too, Brad wonders if language might have interfered with his ability to understand the math problem:

Looking at this work a second time, I also see that language might have been a challenge for Jonathan to start this problem. I didn't think of it at first because his lack of effort at first made me jump to conclusions about his reasoning.

Seeing a "bare minimum of work on Jonathan's paper," Brad initially thought Jonathan did not understand the mathematics; but, as Brad lingered over the assignment, he saw how another Spanish-speaking student, Crystal, struggled with the language in the problem. Brad wondered if language was a problem in Jonathan's case too.

In his portfolio entry, Brad wrote, "After looking at Crystal's work, I think there might be a barrier of language even though Jonathan presents as able to speak and read English perfectly." Close inspection of student work in response to this math task, as well as writing about the relationship between the task and concrete evidence of students' learning, provided an opportunity for Brad to consider the assignment he gave to his students. It also helped him to look at the work the students produced from several perspectives: their ability to reason mathematically as well as their ability to understand the task and comprehend the question. Brad concluded: "For the whole class, I will look more carefully at the specific connection in lessons like this [to] language. I will aim to use more strategies that are effective [for] English learners."

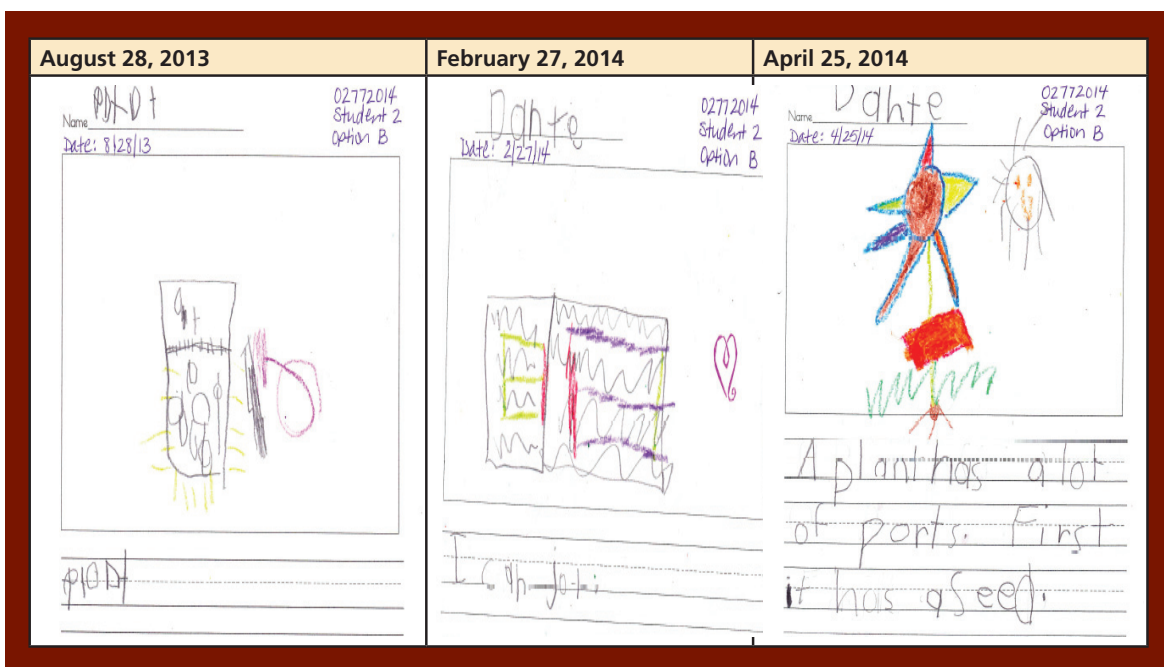
Brad's realization seems particularly important since he described his class as "the primarily Spanish-speaking section" where he provides instruction "in English". In the opening of his portfolio entry, Brad wrote: "The most prominent instructional challenge for this class is breaking down emotional barriers to learning math" and a "secondary challenge is that a significant portion has gaps in basic calculations." Given Brad's initial concerns, knowing how to provide math instruction to these middle school students so that language is not an impediment to their learning mathematical concepts or practices seems critical to the students' success.

Olivia looks closely at a child’s performance and adapts her teaching. When interviewed, Central Elementary teacher Olivia, an eight-year veteran kindergarten teacher, said her practice had not changed after participating in the NB Certification process. Olivia said, “I did not learn necessarily anything more from [the NB Certification process] than what I already am doing” around planning, teaching, and assessing. Yet, close examination of Olivia’s portfolio entries indicates that as she looked closely at one student’s work, she noticed the student’s particular learning needs and designed instruction specifically to meet these needs.

Per the certification requirements, Olivia also selected two students, Dante and Jennifer, as focal students to discuss how she supported their literacy development. In her entry, Olivia described Dante this way: “The eighth child in a family of nine children with a single mom, Dante entered kindergarten in August with few academic skills. He did not attend preschool and had no exposure to writing his name or identifying letters, sounds, numbers or colors.” Olivia also wrote that she suspected Dante might have Attention Deficit Hyper-Activity Disorder (ADHD) because he was unable to focus.

In the same entry, she began to orient her reflective commentary toward her own practice. As she began to address the specific prompts for Entry 1, she described seeing an improvement in Dante’s writing fluency. For example, Olivia observed in Dante’s first writing sample in August 2013 (see Figure 2) that while he knew that the lines on the paper were for writing, Dante still had difficulty writing his name. Consequently, Olivia described using “phonics chants, which reinforced letter names

Figure 2: Dante’s writing samples during the 2013–2014 school year



and sounds” with Dante. She also described using an Alpha Friends poster to assist Dante in seeing the letters on the poster while doing the phonics chants. Moreover, Olivia focused on one letter per week. Dante, in response, learned his sounds and correctly wrote the letters.

By Dante’s second writing sample, Olivia sees that the supports she provided are improving Dante’s writing fluency: “He knows how to write his name and what is necessary in a sentence, such as capitalization and punctuation.” After the second writing sample, she noted that she continued to work with Dante in a small group setting. She described supporting him by reading his work aloud so that Dante would hear a more fluent reader; Olivia also said she encouraged Dante to revise his sentences based on what he intended to write. In analyzing his third writing sample, Olivia noted: “He wrote a topic sentence and one sentence using a transition word and drew an appropriate picture to go with his writing.” As Olivia analyzed Dante’s writing samples and documented evidence of her accomplished teaching, she focused on the type of instruction needed to support Dante as a writer. In so doing, Olivia described how she adapted her teaching to meet Dante’s specific strengths and needs.

Although Olivia thought that little had changed in her practice as a result of participating in the NB Certification process, her reflective commentary in Entry 1, based on Dante’s work samples, suggests otherwise. She described how her one-on-one and small-group instruction with Dante enabled him to “progress from recognizing zero letters and sounds to recognizing most letters and sounds. He [learned] to write his name and write a complete sentence with capitalization and punctuation.” In her commentary, we increasingly see Olivia focused on Dante’s idiosyncrasies and capabilities and, in turn, we also see Dante develop as a writer.

Both Brad and Olivia seem to see their students more clearly by looking closely at their work and actions. They also describe how their close examination of student work led to instructional insights, informed their teaching decisions, and consequently, helped students learn. In response to knowing their students better through a close examination of student work and to seeing more clearly the relationship between their own instruction and students’ opportunities to learn, the teachers also became more strategic about designing instruction to meet students’ needs. Next, we consider examples from Amy, Maisy, and Nancy, which highlight adjustments these candidates made to their instruction as a result of examining their teaching videos and samples of student work.

Amy watches herself teach and realizes students need more time to talk and think. In one portfolio entry, Amy analyzed her own Number Talk lesson.¹⁴ Number Talks were being promoted in West District as a good instructional practice. In

¹⁴ Sherry Parrish (2011) describes classroom number talks as 5- to 15-minute conversations about purposefully crafted computation problems. According to her, “they are a productive tool that can be incorporated into classroom instruction to combine the essential processes and habits of mind of doing math” (p. 199).

Amy's lesson, students were asked to turn to their partner and discuss how they might solve the subtraction problem: $50 - 17$. Amy stated two learning goals for this lesson in her entry: (a) to create the conditions in which students would be able to listen to their partner's explanation and record it on a piece of paper and (b) to articulate their thinking in a complete and comprehensible fashion. As Amy analyzed her teaching video for evidence of student learning, she saw a mismatch between her actual teaching moves and intended student learning goals: "I noticed right away that I'm not allowing enough talk time for both partners to share their thoughts."

In Entry 2, Amy described how looking closely at her Number Talk instruction and the routines that she had established for this teaching strategy helped her see she needed to "allow sufficient time... to create an equitable learning environment where all student voices are heard." Amy noticed that providing students with a high cognitive demand question and an opportunity to discuss its solution was not sufficient to support student learning if she did not give students *enough time* to develop answers to the question she posed. Amy identified adjustments she could make to her teaching to increase students' opportunities for learning. Her close inspection of this episode of her teaching, in which she was prompted to show evidence of student learning, helped her see how she could better support student learning in the future.

Maisy and Nancy developed instructional approaches to meet student needs.

Maisy, a teacher from Central with 21 years of experience, said that as she gathered evidence to show how students were learning for Entry 3, she began to observe not only if students were on task but also how they were making sense of the task. As a result of the certification process, Maisy said she now takes "notes differently on how my kids are performing." In a measurement unit, Maisy described focusing on the ways individual students made sense of concepts in order to better design lessons. For example, when one student had difficulty measuring distance, Maisy realized that she had taught students how to measure long distances without first helping them understand basic units of measurement. She described adjusting her teaching practice when she noticed "how a child looks at just *the car* rolling down the ramp and measuring *that distance*...." Maisy said pursuing certification helped her learn to pay attention to and identify student misunderstandings and adapt her lessons to respond to what students know.

Nancy, also a veteran teacher at Central Elementary with 14 years of teaching experience, described how selecting focal students and analyzing their work samples for her NB portfolio focused her attention on students' individual needs. She selected Juan as a focal student because she wanted to identify strategies to increase his writing fluency. In her portfolio, she described Juan as a "seven-year-old boy, the oldest in the class and a student with a lot of energy." As she analyzed Juan's work, she discovered that in order for Juan to demonstrate writing fluency, she would need to provide him with additional supports.

What kind of writing activities does [Juan] need to improve his writing? I noticed he was really good at giving ideas orally but he was struggling at the time to put them on paper. Why does he omit sounds when writing? He has no problem speaking. I even was observing the way he organized his ideas before writing and noticed he was making all the sounds correctly. I also asked myself, “How can I help him organize his ideas to write?” Because I noticed [Juan] always has too much to say, it is hard for him just to choose what to write in order of priority.

In this entry, Nancy asks herself questions about the sort of instruction that Juan needs and poses possible answers. Each question stems from an observation she has made. Nancy wonders why Juan omits sounds when writing. This error puzzles her because she has noticed he “has no problem speaking” and he “make[s] all the sounds correctly.” Her questions show careful consideration of Juan as a writer and her analysis shows Nancy considering the relationship between teaching moves she might make and her knowledge of Juan. As Nancy wrote about her observations of Juan, she seemed to become more attuned to the particular supports he needs to learn.

After analyzing examples of Juan’s work, Nancy identified several supports she could offer Juan to help him develop as a writer. These supports included creating a punctuation song for him, making a sentence chart and a thinking map that he could use to orient and organize his thoughts in addition to giving him individual instruction. By noticing the supports that Juan needed, she discovered and used instructional techniques that also helped other students in her class learn. Nancy reported seeing some improvement in first-grade students’ writing in the 2013–14 school year, but she described greater improvement in student learning the following year when she taught kindergarten. She said the following year she used the writing supports she had developed with Juan to organize her kindergarten lessons “to guide... students through the writing process.” She said, “I’m really surprised, but it’s January and my students are writing [in] kindergarten!” Her comment suggests her kindergarteners were demonstrating more writing fluency in January than her first-grade students had the previous year.

Changes to Teaching Practice

These examples show that Amy, Maisy, and Nancy adjusted their teaching to better meet the particular learning needs of their students through close analysis of student and teacher work. The adjustments that these teachers made to their practice benefitted these particular students, but in many cases it is clear that their realizations about teaching and student learning benefitted other students as well. Close analysis of instructional episodes and of the things students made and did prompted changes to teaching that created opportunities for student learning regardless of whether or not the teacher achieved NB Certification.

Reflecting back a year later on her certification experience, Amy said she strengthened her teaching through this process. She learned:

...about the instructional strategy [of using Number Talks, which was a strategy that the district was advocating] through spending more time planning. If I had not been participating in the National Boards, I probably would not have spent the time that I did planning... Number Talks.

Amy's example shows how the act of participating in the NB Certification process prompted her to spend time planning her lesson carefully to support her students' learning. This example also suggests that planning lessons with care so that instruction genuinely guides student learning can be a time-consuming process that requires consideration of individual students, the conceptual demands of the content, and the specific learning goals. Thus, knowing about effective approaches, like Number Talks, is not the same as knowing how to use this strategy effectively in your own classroom to support the learning of particular students.

Other candidates described how writing about their teaching helped them to see their teaching moves and their effects more clearly. For example, one candidate said, "Through the process of writing about [my teaching], I looked closely at what I had done. It helped me recognize how important things were that I was already doing." This realization helped this teacher to make more effective use of these "important" strategies and teaching moves. Amy also described this phenomenon: "I looked more closely at a lot of the practices that I was doing or had started doing last year, things that had been going on for some time in my room." A third candidate said, "Going through the process... writing out entries that had to reference one of my learning goals... kept me really specific [about] what part of my learning goal is this [instruction] meeting?"

Preparing Teaching Videos and Watching Them with Colleagues

Preparing videos of teaching practice and watching these videos with school colleagues provided another important opportunity for teacher learning. Many of the project candidates described the learning that this project expectation provoked. For example, Nancy said watching images of her practice improved her teaching. As she watched her videos to find evidence of accomplished teaching, she looked for instances where her teaching supported student learning. The close analysis of the relationship among instruction, student learning, and the content helped her recognize she needed to connect her assessment of what students know and do to her lesson planning. Nancy described videotaping herself several times before making her video public to her colleagues in her support group. In this way, the project structure and expectation to make entry submissions public to school colleagues may have increased the extent to which Nancy closely examined her teaching and its effects on her students' learning.

As she watched each clip, Nancy described learning that it was more important to follow students' thinking than to rigidly follow her lesson plan. For example, Nancy observed that she had not adequately anticipated students' misunderstandings.

Last year when I was videotaping my lessons, I remember that the first lesson I videotaped, I did it, like, three times. Because after the first one, when I was watching myself in the class, I was finding, "Oh, no, I did this. I shouldn't do that." It was doing that like a feedback to myself before showing the video to everybody. So I reorganized the lesson and then I videotaped again. And with the second one, the same happened. So I reorganized again and videotaped again... so I learned I really need to organize the lesson. I really need to get prepared for things that happen with [students] that you don't expect. Sometimes you're planning it out in one way and in the middle of the class, the students say other things or they respond in a different way, so you have to be prepared.

Incentivized by the expectation to show her video to her colleagues, Nancy watched several iterations of her practice. Nancy said that watching her teaching multiple times allowed her to see that she needed to give greater consideration to how she plans for addressing students' responses. As Nancy reviewed her enacted lessons, she discovered that she focused more on delivering content to students than on noticing and responding to how students made sense of that content. By watching herself teach, she realized she needed to plan for a range of student responses and be prepared to correct student misunderstanding in the midst of teaching. Just as closely observing her student Juan helped her to modify how she delivered instruction, watching images of herself teaching also prompted Nancy to make instructional changes.

Hollow Tree teacher Cynthia also said that watching the videos of her own teaching with her colleagues helped her notice aspects of her teaching practice that were previously invisible to her. In her case, a close inspection of herself teaching reading to Charlie led to small adjustments in her practice. For example, she reduced the number of focus words she gave Charlie to read in a single session after "[seeing] him struggle through a stack of words" on the video she had prepared. Amy similarly reported recognizing changes she needed to make to her number lesson by viewing a teaching episode of her instruction. As teachers examined their teaching videos to identify evidence of student learning, as well as how their teaching moves enabled and supported students to learn, they discovered that teaching well is a complex and ongoing process that requires time and is aided by looking closely with colleagues at student performance and teaching practice. Another candidate, who has since become a school coach, said, "I try to impress upon the teachers I work with how important it is to look at student work."

Selecting Focal Students and Customizing the Learning Focus

Another aspect and unique feature of preparing NB portfolio entries is the requirement that candidates select specific students to focus on. For example, Portfolio Entry 1 requires Early and Middle Childhood Literacy candidates to “select one student to feature as an example of your work with students in promoting literacy development through writing.” Candidates in our project reported that analyzing a teaching dilemma from their own practice was particularly relevant to them. Participants in both East and West districts said a feature of this project and of the certification process that separated this professional learning experience from other district and school-based professional development was the agency they had to select focal students and identify aspects of their teaching they wanted to examine. For example, Nancy wanted to help Juan, who had repeated kindergarten, increase his writing fluency. Brad chose Jonathan and Crystal because they were two of his most challenging students. Both Hollow Tree and Central teachers found determining the professional learning focus of this work valuable.

Another Hollow Tree teacher said that unlike professional development she had experienced in the past this experience “was really personal” because she had the opportunity to “pick some very challenging students to focus on... and areas I wanted to improve on.” This teacher said she “could have picked an easier kid” but found analyzing a challenging student particularly rewarding. The process of constantly reflecting on what she was doing and what and how students were learning encouraged “a lot of trial and error” and helped her improve her teaching.

Hollow Tree Teachers Broaden their Conception of Assessment

How teachers learned through this professional learning intervention and the effects on teaching worked together. The ways in which this professional learning developed and manifested in teaching practice is well illustrated by three Hollow Tree teachers, Cynthia, Dierdra, and Ellen, who broadened their ideas about assessment practice. Examples of how they developed their understanding and use of formative assessment are described.

At Hollow Tree, Principal Hartford actively encouraged and challenged teachers to look for evidence of student learning beyond “test score data,” so it is not surprising that those teacher candidates broadened their conception of assessment. Other studies (e.g., Sato, Wei, & Darling-Hammond, 2008) have also found the NB Certification process helps teachers develop ways of using formative assessment in everyday instruction. It is interesting to notice that at Central Elementary no evidence stood out that teachers developed this broadened sense of assessment. One explanation for this difference is that Principal Hartford was explicit about valuing alternative forms of assessment. This was not a focus at Central Elementary. Thus, this example also previews how the school context and culture, such as the principal’s priorities, shaped and influenced what teachers learned.

Cynthia begins to use formative assessment to inform her instruction. Cynthia, who taught special education at Hollow Tree, described how she made adjustments to her instruction after carefully examining the relationship between her teaching and students' learning. Cynthia described an insight she had about Charlie when "she saw him read on video." In her interview, she said, "I saw the mistakes he was still making. That's when I said, 'Let me try this—mix it up a little bit,' and I ended up doing [a new warm-up activity with him] for the remainder of the year." In her portfolio entry, Cynthia wrote:

Charlie was an eighth grader still struggling with sight words, making mistakes.... We made sight words...we would divide the words into piles of ones we knew and ones we didn't know.

Cynthia seemed pleased with the adjustment to her instruction she made for Charlie. She said, "As a special education teacher, I do a lot of assessments. But, I feel like a lot of times I can only use certain assessments.... It wasn't until people pointed out that I do a lot of informal assessments" that she described becoming more conscious of some of her instructional decisions.

Dierdra and Ellen discover evidence of learning comes in various forms. Another Hollow Tree special education teacher, Dierdra, talked about how she broadened her conception of what evidence of learning can look like. She said:

What was great was learning that the evidence that I was looking for to put in my entries and to demonstrate my teaching and the students' learning was broadened. I learned that different student interactions were evidence of increasing their social-emotional skills. I learned that it didn't just have to be timed fluency tests to show that students were getting better and it didn't have to just be grades on a paper. There were much smaller developmental milestones and benchmarks that these kids could show me in the classroom.

An example of Dierdra's broadened conception of what counts as evidence of learning is clear in her portfolio Entry 2. Here, Dierdra described how she became more attentive to students' individual learning needs. In particular, she describes her work with Jasmine during a lesson in which students had to craft a persuasive argument. The lesson's primary objective was to have students develop a thesis statement and two supporting arguments. Commenting on her teaching video, Dierdra noticed that she needed to allow more thinking time for students: "When working with Jasmine in the future, as well as other students, it is clear that 'think time' is critical for all learners for the writing process." Dierdra also observed, "My subsequent writing instruction needs to continue providing challenging questions that force this student to think critically, while giving her the space to independently work on her written response." Prompted by the assignment to look for evidence of student learning,

Dierdra, like other teachers we've described, began to pay closer attention to how students learned and what she needed to do to support these individual learners. As she reflected on her teaching video, Dierdra also began to develop a more expansive view of assessment, recognizing that her close observations of what students were doing in the classroom—the revisions made to their writing and their interactions with each other—provided evidence of learning.

Ellen, who taught reading, writing, math, and social-emotional development to a group of Special Education students at Hollow Tree, also described how she developed a more nuanced understanding of assessment and its relationship to her instructional practice during her year as a National Board candidate. In her portfolio Entry 1, she wrote:

From this process, I also learned how helpful it is to use assessment tools that I have an understanding of and can collaborate with others on the data results. It was easy to discuss instructional strategies I could try with [the focal student] and his reading group because my colleagues on the [literacy] team were familiar with the data I was using, and they could share ideas from their experience of having similar student responses.

Ellen also commented, “As I think about my work with [my focal student], I have learned that assessments and instruction go hand-in-hand, that you can't have one without the other. I learned they are a part of a continuous cycle....” Even though her goals for her focal student were about increasing his reading fluency and comprehension, Ellen saw a connection between her learning and her teaching of other subject matter: “This understanding of the assessment/instruction relationship will help me to support [my focal student's] challenges in math.” Although the assessments were already in use at Hollow Tree, the certification process prompted Ellen to look closely at the relationship between how she was teaching particular students and what they were learning. In addition, the structure of this project provided opportunities to conduct this examination of teaching practice and student learning with her colleagues at Hollow Tree.

These changes in their thinking and practice that Cynthia, Dierdra, and Ellen described suggest that Hollow Tree teachers—especially the special education teachers—were developing a more nuanced conception of what evidence of student learning looks like, which Principal Hartford reported was lacking at the outset of the project: “[Teachers] only know data in a limited way.”

Teachers Make Changes to Instruction That Appear to Help Students Learn

In total, the individual insights from Hollow Tree teachers (Amy, Brad, Cynthia, Dierdra, and Ellen) and Central teachers (Maisy, Nancy, and Olivia) about their own teaching practices represent important adjustments to individual teachers' instruction at these schools. The reported changes in how these teachers think about and conduct their teaching appear to have the potential to endure and thereby to create more meaningful opportunities for student learning in the future.

Receiving Ongoing Support From NB Support Providers

In addition to the school cohort structure and processes for looking collaboratively at portfolio entries, the intervention also involved NB support providers. We found that the NB support providers assumed several important roles in the project and that the particular roles varied depending upon whether or not the support provider was a school colleague or was located outside of the school and worked through the NBRC. On-site support providers, who were also colleagues, assumed two primary roles in the candidates' certification process. They became facilitators of the certification process and providers of readily accessible knowledge. The external support provider, Sandy Dean, provided support and leadership for this project through the NBRC. She assumed a different but complementary role in the project. She designed the curriculum for the NB support sessions, co-facilitated these sessions with the lead support providers at Hollow Tree and Central, and coached the NBCTs in their new role as support provider to candidates. In this way, the NBRC support provider helped to develop the school's capacity to provide ongoing support to its teachers. Both support providers operated in roles that stimulated and supported changes to teachers' practice and to the school's culture.

The Role of the External, Expert Support Provider

Sandy Dean brought 34 years of classroom teaching experience and nine years of supporting National Board certification candidates to her support role. She had strong views about the importance of teachers continuing to learn and refine their own practice. She said, "Board certified teachers still... have to keep working at [their teaching.] You certify and then you keep getting better because your practice is guided by a set of standards." She also believed that teachers needed "time" and "structure within their days to do that kind of work." The support and guidance she brought to her role stemmed from these values and aims for the project.

She knew most of the NBCTs at Hollow Tree and Central because they had participated in the NBRC's support program. From the initial conception of the project, she thought having support providers on site at the school was a critical part of the project's design. In her role as an external support provider, she assumed three support roles: curriculum designer, facilitator of the school support sessions, and coach to the NBCTs, most of whom were new to the role of support provider.

Curriculum Designer

According to the lead support provider at Hollow Tree, Dean “had a plan [and] vision.” She said Dean “played a big role with designing a scope and sequence for what our meetings at [Hollow Tree] would look like throughout the year.” Dean initially conceived of informal support sessions akin to the ones she provided in her role at Stanford. Typically during the Stanford sessions, candidates brought their work and received support on how to write about the evidence they selected. The support focused on linking their evidence of accomplished teaching practice to the National Board’s Five Core Propositions.

The sessions at Hollow Tree and Central, however, were more formal than her initially conceived approach of “I’ll give you the material and you guys learn how to use it.” According to Dean, “My role as I conceived of it initially was a little bit different than the role I ended up taking. I thought I was going to really facilitate very strongly the work of the support providers in the school.” The relatively large number of teachers attempting certification coupled with the novice support providers on staff caused her to design a more formal series of sessions at the outset focused on each entry and to take a stronger hand in their facilitation. She knew that the NBCTs at Hollow Tree who “had been to the Stanford program... wanted that same kind of conversation and that same kind of support, but they didn’t have the background nor did they have the time.” She saw that as “a huge issue.” The support provider at Central similarly struggled, especially with an initial caseload of 11 candidates.

At Stanford, support providers with expertise in each certification content area were on-hand to work with candidates; this range of expertise did not exist among the NBCTs at Hollow Tree or Central. According to one special education candidate, who also attended support sessions at Stanford, working with a special education NBCT at Stanford helped her to “articulate ideas and facts and realities of what it means to be an exceptional needs teacher.” To make up for the lack of experience and expertise among the on-site support providers, Dean designed the content of the sessions and sought to make sure all candidates understood the process and expectations for certification in their candidacy area.

Co-Facilitator

In addition to designing curriculum for the support sessions, Dean also facilitated the early support sessions. The Hollow Tree lead support provider said, “I would offer support; she really ran [the sessions]”. Dean’s decision to facilitate these opening sessions was intentional. She thought there were “limitations of turning [the sessions] over to people in the school” at the outset, since they lacked experience in supporting candidates. She said even though they were “board-certified... knowing how to be a support provider has to go beyond that.” According to Dean, being “board-certified and knowing how to be a support provider” required different skill sets.

Over the course of the year, she gradually released responsibility to the school lead support providers. By the middle of the school year, the on-site support providers took a more central role in facilitating the sessions. At Hollow Tree, with four on-site support providers, the sessions shifted from whole-group “direct instruction” to smaller group discussions facilitated by the on-site support providers and Dean. Sessions were designed to provide teachers with “more individual work time and... differentiated more, because not everyone was working on the same certificate area.” At Central, with only one on-site support provider, less individualized support was possible.

In the small Hollow Tree groups, one teacher described the support she received from Dean when completing the final entry: “She was my support provider for Entry 4. She was great. She was my sounding board.” This teacher recalled that as she drafted Entry 4 and considered how she contributed to student learning through collaborating with her colleagues and partnering with students’ families, Dean asked, “Are [all the factors] tying together? Are you as explicit as you need to be and clear?” For this teacher, these questions allowed her to “flesh out ideas.”

Role Model and Coach to the On-site Support Providers

In addition to serving as curriculum designer and facilitator of the support sessions, Dean acted as a coach and “a role model” to the on-site support providers. This role was critical for developing the schools’ capacity to support candidates in the future as well as to develop a culture where teachers regularly conduct and participate in conversations about “good” teaching and student learning. Dean thought an experienced and skilled support provider could demonstrate “what a support provider could do.” She was conscious of modeling two specific skills that she thought support providers needed to have: knowing “how to support your own colleagues” and knowing “how to be good at asking the right questions at the right time and when to be quiet and let other people take over.” Developing the capacity of the NBCTs at Hollow Tree to lead conversations about accomplished teaching was a goal of hers through this project: “When you hear those conversations that happen in really good support groups, you begin to go, ‘That’s what I want to happen.’” Her belief was that “teachers can do this for themselves” if they learn how.

Dean thought support providers needed to be willing to challenge their peers, to ask probing questions, to interrogate their assumptions or conclusions. This is what she meant by *support providers need to know how to support their own colleagues*. This practice of questioning each other and interrogating assumptions is not the way teachers in schools typically communicate with one another. Indeed, this behavior is counter-cultural to most school climates where teachers have adopted a culture of nice, where they will only say nice things about each other’s work even if the goal of the discussion is to improve teaching and learning.¹⁵ Dean believed that “we

¹⁵ Elisa MacDonald (June, 2011). When nice won’t suffice: Honest discourse is key to shifting school culture. JSD.

don't know how to talk to our professional colleagues very well." In her words, "We don't know how to hold each other accountable for what we do." And, for her, "being a support provider really is doing some of that." She thought the role of the support provider is to ask candidates, "How does that match with the standard you just read?" Learning how to keep the conversation focused on the student work and what the students' were learning was an important facilitation skill to cultivate.

She also thought it was important for support providers to develop their ability to ask questions that further candidates' learning and insights. She said oftentimes candidates "talk about evidence that is separate from kids. And you cannot do that." When this happened she thought it was essential to "steer [candidates] back to: 'What difference did that make? What did you think about it? Why did you say what you said?'" In other words, she thought effective support providers knew how to ask teachers questions that connected their teaching to student actions. Teachers needed to learn how to go beyond recounting what they did in the classroom with students and explain why they did what they did, as well as discern what the effects of their actions were on students. Her experience was that developing these skills for support providers took time. She said, "Early support providers always want... a list of questions so [they] know what to say." Because she wanted support providers to learn how to challenge their colleagues to think critically about the assumptions they were making about the relationship between student learning and instructional practice, she used "sentence starters" to model how particular questions could push teachers to think more deeply about their teaching and its implications for student learning.

Another way that the NBRC project leader supported the on-site providers was to review the nature of support that the on-site providers gave candidates during project sessions. Dean "would often sit with us when we would debrief the sessions." In these discussions, she would "give us some specific suggestions on how better to support our teachers." She would do this by asking specific questions: "Let's think about how you were trying to support that candidate. What did you think about those kinds of questions? How might you have asked them differently? What do you think that candidate needs right now?" In this way the NBCTs recognized that they were receiving "a little bit of coaching" to become better support providers.

On-site Support

The on-site support providers at both schools learned a lot from Sandy Dean. The number of available on-site support providers was quite different at the two schools. Hollow Tree had four on-site support providers to assist ten candidates; while at Central Elementary School, there was only one support provider to help 11 candidates.

At Hollow Tree

Although Hollow Tree NBCTs did not have experience providing support to other candidates, they had enthusiasm for the certification process and a strong desire to

support their colleagues. Dean remembered talking with the newly certified NBCTs about this project. She recalled, “The newly certified [said], ‘I would love to have more people on our staff and I would love to have the conversations that we’ve had at Stanford be a part of the conversations we have at school.’” Hollow Tree NBCTs approached their work as support providers by organizing the candidates into smaller groups. According to Dean,

Their approach was exactly what I had hoped could happen if they would each take a little group of people and really get them talking to each other in groups of two, three, or four. And it was like a dream come true watching some of that happen.

Over the course of a single year, these 14 teachers at Hollow Tree met once or twice a month to examine their teaching and to look for evidence of student learning. In so doing, they were learning how to participate in conversations about “what good teaching looks like.” However, as Dean cautioned, shifting a school culture takes time and requires deliberate and repeated actions: “It takes time for teachers to develop that way of talking to each other.”

Facilitating the process. The NBCT at Hollow Tree who had certified three years earlier held the lead support provider role at Hollow Tree. She had worked with teachers in the past who were pursuing certification, but this was the first time she had supported a cohort of teachers within her school. As she grew into her role, she became increasingly alert to the candidates’ various needs and communicated these needs to Hollow Tree administrators and to Dean as necessary. For example, she communicated to Principal Hartford the additional supports that could assist candidates as they pursued certification, such as release time to do some of the work. She asked if professional development funds could be used to pay for a substitute teacher as candidates prepared the final drafts of their entries. She advocated for making time in the candidates’ schedules to work on their portfolios and, in so doing, made the case that the certification process should be considered part of a teacher’s professional work.

The lead support provider at Hollow Tree advocated for the candidates’ needs in other ways too. She said, “We were getting feedback from some of the teachers that they wanted more individual work time [during the monthly sessions], and they wanted us to differentiate more because not everyone was working on the same certificate area.” She shared this feedback with Dean and her NBCT colleagues at Hollow Tree. Together, they modified the content and structure of the monthly support sessions. The monthly sessions moved from primarily whole-group interactions to smaller groups, and teachers selected the small-group focus that best responded to what they needed.

A teacher described how these sessions were organized to accommodate a variety of candidate needs:

If you want a quiet space to work, go sit at these tables. If you want somebody to preview a video you go here. If you want to dialogue about how to put your ideas into words you go here. It was what we needed.

This teacher thought the format supported her learning because the NBCTs on staff led each individual group. With four NBCTs at Hollow Tree supporting the candidates, there was the capacity to respond to teachers' requests and provide individualized support. The small ratio of NBCT support providers to candidates at Hollow Tree enabled their support sessions to be particularly responsive to candidates' individual needs, which in turn may have contributed to the overall quality of the portfolios Hollow Tree teachers submitted.

Easy access to knowledgeable colleagues. All interviewed teachers at Hollow Tree described the benefits of having easy access to someone in their building whose professional expertise they valued. Participants stated that the NBCTs gave instant feedback that pushed their thinking. One teacher at Hollow Tree said having NBCTs on site to provide support was helpful:

I would go to them, sometimes every week, with a question... I still felt very comfortable running an idea by them, asking them to review an entry outside of those designated times.

Teachers at Hollow Tree met formally once a month. However, because the project was designed to have on-site support as well, Hollow Tree teachers did not have to wait until the next month's meeting to discuss their practice or have a question answered. They could walk down the hall or downstairs to find support when they needed it. If teachers had technical questions about formatting or uploading documents, help was nearby.

One candidate described how having access to multiple NBCTs at her school gave her support and specific feedback on the various components of her portfolio. She said:

One day one NBCT is reading an entry; one day another NBCT is watching a video; another day a third NBCT is going over my graphic organizer of documented accomplishments to help me figure out which ones are the best one to write about.

This teacher said the support she received "was tailored to what [she] needed at the time." Access to so much tailored support was a real luxury. Involving so many teachers in this project also helped Hollow Tree begin to grow a culture where reaching out to colleagues for support and to discuss teaching was customary and, perhaps, even expected.

At Central Elementary

Central teachers described benefits and drawbacks when working with their on-site support provider. Teachers appreciated her knowledge of the school context, which they thought positively influenced the coaching sessions. They also liked having access to someone they could turn to immediately when questions arose. While there were two NBCTs on the faculty, only one played an active role in supporting teachers during the certification process and she also was a full-time classroom teacher. The other NBCT had an informal role; as the portfolio deadline approached, she read colleagues' entries.

Ready access to a knowledgeable colleague. Central teachers also described the benefits of having easy access to someone in their building whose professional expertise they valued. Teachers stated that the on-site support provider gave instant feedback that pushed their thinking. One teacher at Central said having a support provider on site was helpful “because if I had questions, I was able to ask someone.” This teacher stated that because there was an on-site support provider, she did not have to wait until next month’s meeting to have a question answered about her practice. Teachers could walk down the hall or across the schoolyard when they needed support. Another Central teacher noted it made a difference “to have somebody right here whenever I needed to ask her a question—I could send her my documentation and she’ll send it back or go sit with me.” If teachers had technical questions about formatting or uploading documents, they felt a sense of relief that there was someone in their building to help them.

Facilitating the process. The on-site support provider worked with teachers to understand the task for each entry and to help teachers identify artifacts, such as student work samples, to provide as evidence of accomplished teaching. When interviewed, several teachers said they wished the sessions led by the on-site support provider had placed more emphasis on how to write entries that connected their selected student work and video excerpts of their teaching to the National Board Standards. The ability to connect the standards to practice is critical to the certification process. However, it is difficult to know how to interpret the candidates’ desire for more analytical support in constructing their entries. One possibility is that there was not enough individualized and expert attention available to help these teachers who were submitting portfolios in four different certification areas. Another possibility is that these teachers, who were used to closely adhering to the district’s curriculum plan, wanted too much direction and guidance to write their certification entries. Ultimately, candidates do need to be able to articulate the relationship between their teaching and the standards in order to demonstrate evidence of accomplished teaching.

The context for providing support to candidates at Central, however, was challenging. The on-site support provider expressed feeling limited in her ability to support so many teachers. In addition to being the only school support provider to 11 candi-

dates, she was also a full time teacher and supported other candidates in the district. She said she “would love another partner” in this work. And, although she began supporting candidates approximately two years ago after taking a 30-hour online support provider course offered through NBPTS, she said she “could use more PD [professional development] as a candidate support provider.” As Dean’s role in the project demonstrated, becoming an effective support provider is a learned skill.

Constraints to Candidates’ Learning at Central Elementary

In addition to having only one support provider to turn to at Central Elementary, there were other conditions that made the project challenging for Central teachers. The expectation in the district and school that “every lesson has to be DI [direct instruction]” created difficulties for candidates. Explicit Direct Instruction (EDI) was not particularly compatible with the National Board approach to instruction. For example, one teacher commented on the tension between the two approaches: “If I do what I want to do for National Boards, I’m not pleasing the people who are expecting to walk into my room and see me doing EDI every time they walk through.” Central’s school support provider agreed: “In a National Boards classroom where it’s student-centered, there’s a lot of project-based stuff going on, exploration going on, [the teaching] is not going to be so explicit.” Central’s support provider thought that when district officials “walk through the classrooms, they want an easy observation”—one where adherence to the scripted lesson could be easily seen.

Aware of East District’s view of NBPTS and her responsibility to have teachers demonstrate fidelity to the two district initiatives—EDI and the newly adopted Common Core—it is not surprising that Principal Castanza expressed feeling a little vulnerable with this project. She said, “I feel like I’m taking a little bit of a risk here... because so many of my teachers are participating in [NB Certification].” Yet, Castanza also expressed support for the project:

I feel, with my background in education [having taught in other districts] that it’s a great thing for teachers to participate in.... I see this as helping us.... It’s going to help my teachers grow in their best practices in the classroom. It’s going to make them stronger in collaborating with each other as well. I’m hoping a lot of the work that they do for National Boards streamlines the work they are already doing in the classroom.

Castanza was optimistic that the NB Certification project would help teachers at Central grow professionally. Understandably, she also expressed concern about the amount of work certification might require, which would compete for teachers’ time. Concerned about time and project expectations, Castanza said, “I don’t want [teachers] to be overwhelmed. I really want to make sure they’re doing the best job

they can do in their classrooms without this taking away from that....” Given the school and district contexts, it is a testament to Castanza’s sincere support for the project that, when asked, she gave a teacher permission to depart from the scripted curriculum in order to complete a particular portfolio entry. When interviewed about her views of the National Board at the outset of the project, Castanza had said,

... I think we’re just going to have to show how it enriches their teaching and the learning in the classroom, and maybe it’ll switch some shift in thinking about National Boards [in East District].

Under the circumstances, Castanza’s decision to participate in the project during her first year as principal in the district and her decision to give a teacher permission to depart from the scripted curriculum seem courageous and early indicator of cultural change.

That a teacher felt the need to request permission to depart from EDI to teach a single lesson is also revealing. It suggests that this teacher perceived a tension between the expected instructional approach in the district and at Central and the National Board approach. Furthermore, the request may also indicate that this teacher felt she had limited authority to make daily instructional decisions in her classroom. In East District and at Central Elementary, the contexts seemed to constrain, or at least limit, teachers’ opportunities for learning through the NB Certification process.

Early Indicators of Change to the Teaching Cultures at Hollow Tree and Central

Teachers reported small, but meaningful, changes in their school cultures after the one year project, particularly in terms of how they worked with one another and with other teachers and/or families at their school. We found that all participating teachers at Hollow Tree and some participating teachers at Central reported working with their colleagues differently. At Hollow Tree, three additional changes to the teaching culture emerged in our analysis:

1. Participating teachers became more open to making their instruction public and engaged in collaborative examination of student work for evidence of learning;
2. Teacher collaboration that focused on teaching and learning became more frequent; and
3. Special education teachers changed their approach to teaching special education students in order to better meet students' needs.

Three teachers at Central similarly expressed a willingness to make their teaching practice public and recognized that looking at the relationship between teaching and learning in their own practice led to better instruction.

At Central, we also found some evidence that teachers began to view students' families differently and reconsider beliefs they held about parents. Doing so may have led some teachers to reach out to families in different ways in order to engage them in their children's learning. To varying degrees, the teachers at both schools reported developing stronger and more trusting professional relationships with other project participants. While one year is too soon to know if, or how, these stronger professional relationships and small changes to the teaching cultures will contribute to permanent changes in how teachers at these schools conduct their work, groundwork has been done in both schools to prepare environments where teachers are more open to learning from one another and from members of the broader school community in order to further student learning.

The discussion that follows describes the reported changes to teachers' professional relationships and other early indications of changes to the teaching cultures at each school. This analysis also considers how the different school contexts may have shaped the opportunities for teacher learning and school cultural change that were goals of the project design.

Stronger Professional Relationships at Both Schools

At Hollow Tree, stronger professional relationships were reported among the participating teachers. They described having “more professional respect for each other” and referred to each other and NBCTs on staff as the “go-getter teachers.” The teachers seemed to feel that the certification process and project “brought us closer” as a group. One teacher said some of the participating teachers were teachers she did not know well, and the process “helped me know them better.” She attributed the development of stronger relationships to the “trust we built through the process” of talking about our work together. Another Hollow Tree candidate expressed a similar feeling: “I feel closer to the people I went through the process with. There’s a different level of trust. There’s an unspoken... respect.” She also described feeling a responsibility of professional reciprocity: “I would love to help people the way they helped me.” A third Hollow Tree project participant, a 10-year veteran, said,

I learned how to expand my professional network... and collaborate with folks outside of whom I normally collaborated with. I had been at the same school for 10 years. I had found my niche, my team of folks I went to. In this experience... I found myself collaborating with folks I had never collaborated with, working with teachers I didn’t necessarily gravitate to.... This experience... opened up opportunities to work together, talk together, vent together, and bond. It expanded my world of colleagues. It was great.

Through her participation in the project, this veteran teacher expanded her network of colleagues. Among the 14 Hollow Tree project participants, there was a strong sentiment that they had developed closer and more trusting professional relationships with one another and that they were now more inclined to seek each other out for assistance. With a total of 24 classroom teachers at Hollow Tree, the increase in professional respect and trust that these participants expressed is significant. This increased inclination by half of the staff to seek each other out is one way that the project helped lay the groundwork for effecting positive changes to the teaching culture of the school.

At Central many, but not all, teachers also expressed feeling “closer to colleagues who participated.” Central teachers primarily attributed their bonding and camaraderie to having undertaken a common difficult task and providing moral and technical support to each other during the process. The logistical and technical challenges associated with submitting entries electronically seemed to bring the Central teachers closer together. These challenges that Central teachers experienced are what Lortie (1975) called “shared ordeals.” He found that shared ordeals brought teachers closer together. Several candidates told stories of the technological “frustrations” involved in the electronic submission of portfolio entries. “I’m not a computer person... thankfully [my husband] had that background to help me.” Another

candidate described going to a colleague's house to get technology help "trying to input information into the computer." Brought together by these technology challenges, this teacher said, "We'd sit together and bounce ideas back and forth with each other and hear each other's thoughts and give feedback." She thought they "got closer and more intimate based on" their shared experience. This bonding occurred outside of the formal support sessions.

Another teacher described "the feeling that we had, that connection of, 'Wow, that was a lot'" referring to successfully submitting the NB portfolio entries. She also recalled feeling "relieved to talk to somebody else who submitted their [portfolio] work who had the same feeling as me, that she just wanted to sit in a corner and cry." This reaction indicates how taxing the process may have felt for teachers at Central. A third teacher recalled a text exchange with a colleague that provided an important sense of encouragement and motivation: "'You know what? I just did it. Just try it. Just go. It'll be OK.' So I ended up going [to the assessment center]." In these stories, we hear Central teachers recounting the challenges and frustrations that they experienced as well as the support they received from each other to overcome hurdles and submit entries.

The sense of intimacy among Central school colleagues appears to have grown out of their co-participation in a challenging experience. Hollow Tree candidates, on the other hand, were more likely to describe how the process of sharing their work with each other helped them get to know each other better and contributed to an awareness of and respect for each other's instructional knowledge. One reason for this difference might be that the candidates at Hollow Tree spent more time than Central teachers did looking at others' student work and videos of their instructional practice. For instance, when Central candidates were asked about spending time looking at each other's work, we heard that not all participants had this experience. One Central candidate said, "Our leader was saying that we would have to do that, but the [support] sessions I attended, [we] never had a chance to do that. Basically, people were not producing, so we didn't have anything to share, just ideas."

Viewing portfolio entries did not occur early on in the project at Central and some candidates stopped attending cohort support sessions. One teacher said,

At first there were a lot of people from our school who said, "We want to do this, to try it [NB Certification]." And as they started going through the process and reading the requirements, they felt it was going to be a lot of work, so a lot of teachers dropped out of it.

What actually occurred during the cohort sessions, whether or not candidates brought work to the sessions, as well as who attended them, affected teachers' opportunities to learn.

Professional Conversations in Cohort Sessions

The project’s support sessions held in school-based cohorts were intended to help teachers learn with and from their colleagues. Two questions that we had at the outset of the project were: To what extent will these school-based certification support sessions provide opportunities for teachers to learn to strengthen their instructional practice, and will these cohort sessions influence the larger teaching culture in the school? By design, these sessions were intended to engage teachers in practice-based conversations about their teaching and its effects on student learning. We wondered if such conversations, grounded in evidence of teaching practice and student learning and framed by the National Board Professional Teaching Standards, would influence the professional teaching culture in these schools. In practice, we found these sessions did provide a new way for teachers at each school to work together. However, the sorts of opportunities for learning that the conversations at each school afforded differed in some important ways that affected teachers’ opportunities for learning.

The sessions at the two schools differed in terms of the number of sessions where teachers looked together at their own teaching work and the consistency of participation in the sessions. Despite having the same NBRC support provider lead the sessions at each school, teachers at Central were more reluctant than the teachers at Hollow Tree to bring recorded episodes of their teaching and samples of student work samples to cohort meetings for discussion. Indeed, teachers at Central were hesitant about starting to work on their portfolio entries. We also found that teachers’ participation in the cohort sessions at Central was more inconsistent than at Hollow Tree.

How Context Shaped Professional Learning Opportunities in Central’s Cohort

At Central Elementary, district and school expectations competed for teachers’ time and attention. During the project year, teachers were expected to develop curricula aligned to the new standards: “Teachers are expected to create the curriculum as we go. And to create curriculum that deep, that profound, that is in touch with the standards, takes a lot of time and effort, so much prep.” There was also a strong expectation that teachers adhere to Explicit Direct Instruction, which some teachers felt was not well aligned to the National Board approach to teaching. In addition, some teachers felt that having a new principal at Central who did not buffer them from all the district expectations meant there was little available time to spend working on NB Certification.

She asks us to do everything the district tells her to ask us to, and she doesn’t know what to ignore the district about, because she’s still kind of fresh, so she’s telling us everything they want us to do, and that’s way more things than we can handle.

For these reasons, and perhaps because there was also a sense among teachers that East District did not care about NB Certification, teachers' participation in the NB Project waned and some individuals' commitment to the work seemed to diminish.

Like in many schools, teaching at Central was considered a private practice. At the project outset, nine teachers were surveyed and none of them said they were comfortable having their teaching observed or sharing student work with their colleagues. By the end of the project, half of the teachers who responded to a survey (3 of 6) said they agreed that teachers are comfortable having their teaching observed and sharing student work with colleagues. This change in attitude and behavior by a few participating teachers may be associated with their experience of looking at examples of their teaching with colleagues in order to see the effects of teaching on student learning.

If more teachers at Central experienced looking closely at the relationship between their instructional practice and the effects on student performance, perhaps the reported changes in teacher attitudes and behavior would have been even greater. In reality, teachers at Central did not start bringing recorded episodes of their instruction or student work samples to the support session meetings until the project was well underway. By this time, not all participating teachers in the project were regularly attending the support sessions. It took teachers at Central a longer span of time than at Hollow Tree to become comfortable with the idea of bringing artifacts of their own teaching and of students' learning to the support sessions to examine and critique with colleagues.

Looking at each other's teaching was an unfamiliar practice at Central, just as it was at Hollow Tree. However, teachers at Central seemed particularly reluctant to engage in this practice and wanted a lot of reassurance that they were approaching certification in the right way. In their second meeting in November, which focused on knowledge of students, the NBRC support provider noticed many teachers expressed "confusion and a reluctance about getting started [with their entries] because they were fearful" about making mistakes. At the time, the NBRC support provider thought "the degree of fear on many levels among staff members [at Central] is a concern," and she wondered, "How [can I] encourage teachers to take some risks without [getting] permission." With steady encouragement from the support providers, teachers eventually began to bring instructional work to their cohort meetings.

Looking back the following year, participating teacher Maisy described the cohort sessions as an entirely new way of working at Central. She recalled that teachers analyzed student work and videos of their practice together "for the first time." Maisy said:

When we got together, we had discussions. They were fruitful. We got to hear from each other, what each person was discussing, researching, where they were at, how to look with a closer eye at the child.

Her experience was quite different from another Central teacher who reported, “We never had a chance” to look at each other’s work in the sessions.

For those teachers at Central who continued to attend the cohort sessions, the sessions provided a rare opportunity for Central teachers to discuss their teaching with each other. As Timperley (2008) has found in her research on evidence-based conversations that improve student learning, teachers must be willing “to take the risk to have existing assumptions challenged” (p. 77) in order to engage in and learn from such experiences. One topic of conversation during the support sessions that may have challenged teachers’ existing assumptions was the importance of working closely with students’ families to understand their values and goals for their children. These discussions occurred while working together on Entry 4, which requires candidates to “illustrate your partnerships with children’s families and community, and your development as a learner and collaborator with other professionals....” According to the NBRC support provider, some Central teachers were able to describe positive interactions with families, but the majority of Central teachers were unable to find evidence that showed they engaged with families in meaningful ways to facilitate student learning. During cohort sessions, the NBRC support provider noticed that as teachers began to consider their interactions with parents, they began to question their own actions: “When they examined [their actions], they agreed, maybe this isn’t... the best approach.” Central’s on-site support provider was more direct. She recounted teachers saying, “These parents just don’t support the work I do. They don’t care about what I do.” Central’s on-site support provider said some teachers believed parents did not see school as “their domain.”

As the cohort worked on Entry 4, the support providers wanted to help teachers realize that it was their responsibility to make the classroom environment “comfortable” and inviting for parents and to inform parents about what is happening at school. In one session, candidates were asked to discuss how elements of Core Proposition 1—teachers are committed to students and their learning—was represented in their individual practice. As they did so, the teachers raised questions about how information about students is shared among Central teachers. According to the NBRC support provider, “There was general agreement that teachers do not have formal protocols for sharing student information with each other.”

A resource, the *Dimensions of Knowing Students* graphic organizer (see Appendix A), was given to teachers. It had questions about the family’s goals for the child that stimulated conversation among Central teachers about their families’ expectations for students. In one such conversation, teachers made the following comments: “I don’t think our parents have academic goals for their children”; “I don’t know what expectations parents have in terms of school performance”; “Parents don’t really assume much responsibility for making sure their kids are ready for school—we have to do it all.” In response to these comments, the support providers asked candidates: “How do parents know what children should be doing at school? Is there a way they

can know what school expectations are and what a typical student performance is at each level? What kind of conversations do you have with parents to learn about what their expectations and goals are?” Through such probing questions, the support sessions may have helped candidates to examine their practices anew and notice some of the assumptions that they were making, such as “parents really just care about behavior—they don’t mind about the rest,” meaning students’ academic learning. During one of these conversations, a teacher said, “It may be they [parents] don’t really know” what our academic expectations are.

The NBRC support provider reported asking candidates how might we engage in conversations about parent partnerships, as we prepare Entry 4, that would lead to stronger leadership from teachers aimed at changing the ways that the school engages parents? Should we invite the principal to be part of some of these conversations? A consequence of this exchange was that a teacher on staff who was good at developing relationships with families was invited to join a support session to describe how he works with families. He told colleagues about making home visits and eating dinner with students’ families.

Recalling this conversation, one teacher remarked that she thought her colleagues “see the value in it [house visits].” However, she also said:

Not a lot of people are willing to do it, because they have their own lives and their own families. We give so much now that they’re like, “How much more do you want me to give?” I think if our curriculums were done and we could follow a curriculum that was standards-based and wouldn’t have to worry about creating everything from scratch and spending our lives doing every detail and not having any time with family, I think then asking them to do something like that would be fine, because they could do it once in a while. Right now it’s a lot to ask.

This response indicates that teachers at Central felt overwhelmed by the demands of their job—the introduction of new standards and the district’s expectation that they develop standards-aligned curricula. It also indicates receptivity to the idea of getting to know families better but makes clear the difficulty of doing so at this point in time.

The on-site support provider at Central reported noticing that over the course of the year teachers began to change their assumptions about parents and to look for more ways to involve them in school. She recounted hearing one teacher say: “If I just tweak this a little bit, I might get more parents involved.” Central’s support provider believed that the teachers who participated in the certification support sessions learned that they had a responsibility to make sure their classrooms were welcoming environments for students and parents. They were also exposed to some ways to meet that responsibility.

The teachers we interviewed the following fall offered mixed evidence of the on-site support provider's perspective. One teacher remembered the "talks about the families and the parents and greeting them and making sure we appreciate them [families]." This teacher said it was easy for her to engage in these conversations because "being Latina, I'm very aware and open and I can understand the problems that arise when you're not culturally aware." Another teacher thought she was already good at getting to know her students. She said her students "talk about where they live and who they're with. That's just knowing my students. That's not necessarily because of National Boards." While she expressed confidence in "knowing [her] students," she did not offer examples of how she communicates her expectations for student learning to parents nor did she state how she learns what the parents' goals are for their children.

While we recognize our evidence is limited regarding changes teachers may have made in how they communicate with families, we know that all four teachers we interviewed expressed the importance of getting to know students' families. We also know that Principal Castanza modeled involving parents in decisions about their child's learning through actions she initiated to educate parents about the school's two bilingual programs. In this way the principal's practices and the NB Certification process seemed aligned and, perhaps, were mutually influencing.

How Context Shaped Professional Learning Opportunities in Hollow Tree's Cohort

At Hollow Tree several district policies and school practices supported and valued teachers' participation in the NB Certification process. In addition to formally recognizing NBCTs and providing a salary bonus for certification, the district approach to curriculum and instruction cohered with the NBPTS core propositions. The district, for instance, supported a Lesson Study initiative that was underway at Hollow Tree. The simultaneity of the Lesson Study work and the NB Certification project reinforced and enriched the learning experiences for the teachers who participated in both. For example, one candidate described the synergy between the two as "really powerful" because both allowed "teachers to work together and meet regularly and examine their practice." Central to Lesson Study and to the principles of NBPTS is the belief that teachers have the capacity to use their professional expertise to design, assess, and refine instruction to meet the learning needs of students.

All teachers at Hollow Tree were also asked to consider evidence of student learning by looking at student work samples, just as the certification process asks teachers to do. In these ways, the principal's expectations for teachers reinforced aspects of the certification process, and thereby provided Hollow Tree teachers with additional practice examining student work for evidence of learning. In addition, as described previously, there were five NBCTs on staff. Many of the NBCTs had also received certification support from teachers through the National Board Resource Center.

Their background and presence shaped the professional learning experience that project participants experienced at Hollow Tree. Taken together, supportive conditions existed at Hollow Tree that contributed in various ways to teachers' willingness to bring video episodes of their teaching and samples of student work to cohort meetings early on in the project. As a result, Hollow Tree teachers had many months in which to participate in conversations about their own teaching and the effects on student learning.

When the project was over, many teachers described how watching videos of their practice with colleagues helped them to improve. For example, Cynthia described how she attempted to identify various ways she assessed her student, Charlie, but was unable to do so until her colleagues "pointed out that I do a lot of informal assessments." Cynthia highlighted how after having "people watch my [teaching] videos," she realized that there were several instances where she conducted informal, "formative" assessments. A colleague detailed several ways she used formative assessments: "'Oh, you did this, this, this, and this,' and I was like, 'I did?'" Examining teaching episodes with her colleagues revealed aspects of Cynthia's teaching to her that she might not otherwise have noticed or known how to describe. Looking with colleagues at instructional practice may have helped Cynthia become more aware of her instructional moves and consequences, which in turn may have helped her to improve them. For example, through this experience, Cynthia developed language to describe aspects of teaching, such as formative assessments, which gave her a way to talk about and discern elements of her instructional practice.

Another Hollow Tree teacher also spoke about learning with colleagues by making her instruction public: "A huge thing I learned... was collaboration, putting yourself out there. The more you put yourself out there, although it can make you feel kind of vulnerable, it really helps." She specified what she meant:

Show your work; let people watch your videos; read your writing without worrying about judgment, just ask for feedback. Once you're able to say, "This person is my colleague and they're not going to judge me," [you] can take advantage [of the opportunity]. You have some really great conversations.

The act of "putting yourself out there" is her language for making her instruction public and visible to her colleagues for the purpose of looking closely at teaching and learning in order to improve learning.

Participating in a close inspection of teaching and the resulting student work with colleagues gave teachers opportunities to engage in joint sense making about the effects of their practice. This process afforded teachers opportunities to ask questions about teaching and learning, to solicit feedback, to gather ideas and tips from each other and to hear different perspectives. An added benefit of this process was

that teachers got to know each other better. Prior to this project both Hollow Tree and Central teachers said they did not typically meet with their colleagues to discuss teaching or its effects.

The monthly certification support sessions where teachers met with their school colleagues to share lesson plans, student work, video records of practice, and drafts of their portfolio entries provided valuable occasions for teachers to think deeply about how they taught and how best to support student learning. One Hollow Tree teacher noted that her greatest learning came from “the meetings that I had and the work I did with my colleagues” rather than from working on portfolio entries. While weekly teacher team meetings were part of the school schedule at Hollow Tree, teachers said in previous years the focus of the meetings rarely centered on how teachers could improve their instructional practice. Instead, meeting topics tended to focus on other, albeit important, topics like how to implement restorative justice. Hollow Tree teachers found the time provided through the support sessions to “work together and meet regularly and examine their practice” to be a rare and precious opportunity.

Other Noteworthy Changes to the Teaching Culture at Hollow Tree

At Hollow Tree, several other school-wide changes occurred that are associated with this project. Participating teachers became viewed as leaders, and they also increased the frequency with which they collaborated on matters of teaching and learning. Each of these changes represents ways that the project helped lay the groundwork for future changes to the teaching culture. In addition, the team of four special education teachers in the project fundamentally altered Hollow Tree’s approach to educating special education students, a subgroup of students that was particularly low performing at Hollow Tree.

Participating Teachers Viewed as Leaders at Hollow Tree

The principal’s view of the NBCTs as leaders in the school was a change in her perspective. At the project’s outset, the principal expressed concern that some NBCTs on staff exhibited an attitude of entitled autonomy. She had experienced a few NB teachers who presented the attitude of “I don’t actually need to inform my practice, because I’m board certified.” She thought this attitude “very dangerous” and “insidious in an organization.” The NBRC support provider, Sandy Dean, empathized with Hartford’s concern: “[I have] seen some of what you’re talking about with my own colleagues, especially around the issue of autonomy, [when they say,] ‘I no longer have to work with a team. ...I know something other people don’t know.’ ...I think it goes back to the very beginnings of the National Board, when it was seen as sort of an elite designation.” Dean wanted to assure Hartford that this NB Project was designed to promote learning and authentic collaboration. She said:

When the National Board changed its leadership a year and a half ago, the new president of the National Board said, “We want accomplished teaching to become a designation for all teachers, not just some, and we don’t want it to be elite; we want it to be like a board-certified doctor. Teaching is a team sport. When it’s collaborative and when everybody understands what accomplished teaching looks like and you collaborate around those principles, you are more likely to have a really wonderful place to teach, an exciting place to teach, where kids are well served. Bottom line. That’s what this project is about.

A year after the project ended, Principal Hartford expressed relying on this particular group of teachers. She called them “my go-to-people” and described the NBCTs and candidates as “the bigger picture thinkers” in the school who ask insightful questions, who step up to lead initiatives and who get excited about them.

In a spring 2015 interview, Principal Hartford commented that the “depth and thoughtfulness of instruction” in these teachers’ classrooms was pronounced and the quality of instruction was more consistent than in their colleagues’ classrooms. She also said she saw more “cross-collaboration among these teachers” and “a lot of good questioning about instructional practice” going on as well as a “higher quality of planning.” Hartford attributed these changes in part to the NB Certification process and in part to Hollow Tree’s participation in Lesson Study, which attracted the same group of teachers and reinforced some NB practices.

Teacher Collaboration at Hollow Tree Became More Focused on Teaching and Learning

Another way teachers at Hollow Tree influenced the school culture was by collaborating on matters of teaching and learning. NBRC support provider Dean described moments of deep and rewarding collaboration that occurred among the candidates at Hollow Tree. For example, she recalled watching a middle school math candidate “talking to one of the generalist [candidates] about the math–science entry.” She said, “They had not been working together” because he was a middle school teacher, but she had asked him:

Could you go talk to so-and-so about how math and science work together and how math is a tool for understanding science? Because like a lot of generalist candidates, [she was] doing them side by side rather than [seeing] that math facilitates science learning. ...I saw that conversation happening, that the principal had alluded to as not happening in that school. ...He talked about mathematics and how to think about ... [a particular] mathematical construct...why it was important for understanding.

In these small, but not insignificant ways, teachers at Hollow Tree who were less inclined to work together for a variety of reasons, experienced instances of genuine learning from each other. And Principal Hartford confirmed that these teachers continued to be more likely to collaborate with each other after the project ended.

Special Education Teachers Initiate a School-Wide Change

Four Hollow Tree special education candidates in the project took the initiative to make significant changes to how they worked with each other and with general education teachers across the school by starting “an inclusion program.” Through their participation in the NB Project, they became more attuned to their students’ needs and wanted to make changes to the special education program at Hollow Tree. When they consulted the principal, she “deferred to our expertise.” According to one teacher, they “created a schedule for when we would be in different classes to support students with exceptional needs.” This schedule changed and evolved as they “saw behavioral issues” and “kids not learning” and “kids not participating” and “teachers needing support.” When they noticed, “things weren’t working,” they made adjustments. For example, they “went from having kids in full inclusion in the general education class to having those last two hours of the day be a learning center where [exceptional needs students] could be pulled out and get small-group instruction.” They created other student supports, such as designing a one-hour reading block intervention for fourth graders.

Their interactions with general education colleagues changed too. Their “whole approach to meeting with different teachers” had changed. Now, she said, “There was a different tone to it.” One teacher said she asked her colleagues questions such as: “What do you need?... What are some things you already tried? How can I help support these students?” She said the approach became “more inquiry” oriented, and she attributed these changes to her participation in the project and “knowing it’s our job to respond to our kids’ needs and to look at what works and what doesn’t.” The special education teachers reported making changes to how they organized and supported their direct work with students and how they approached their work with their general education colleagues. Their approach had become “incredibly responsive to students’ needs” and offers a good example of an organizational change that grew out of the project. Having all four special education teachers in the project may well have facilitated this relatively extensive and quick change.

Laying the Groundwork for Future Changes to School Culture

As described, the NB Project laid the groundwork to varying degrees in both schools to focus teachers’ attention on the importance of knowing students well and of examining the relationship between what and how teachers are teaching and what students actually learn. For example, at Central four of the teachers continued to pursue NB Certification the following year without the on-site support of the project. Importantly, the most discernable changes to the teaching cultures at both Hollow

Tree and Central were changes that the principal also championed in some manner. For instance, at Central Elementary, there was some indication that teachers changed their outreach to students' families, which was a behavior Principal Castanza also modeled. At Hollow Tree, participating teachers began to develop and use a variety of formative assessments to check for student understanding, which was a learning goal Principal Hartford had for her staff. In addition, Hollow Tree special education teachers who participated in the project reorganized their approach to teaching special education students to better meet student needs, which fit with the principal's reason for supporting this project: "It's about the teachers bettering their practice for students."

The relationship between the project, school culture change, and the principal's goals is not surprising. However, it does point to doing more in future efforts to involve principals in such a project. This project could have done more to help principals play a strategic role in embedding the NB Certification process within their school as a way to influence the overall teaching culture. Developing the principal's knowledge of the learning opportunities that the certification process affords would be useful toward this end goal. Having the principal do more to educate the support providers about his or her learning goals for teachers and students, including discussing opportunities for connecting NB professional learning to specific instructional improvement goals throughout the project, also could increase the school effect.

Findings

We found the NB Certification Project—a professional learning intervention that provided NB support providers to assist cohorts of teachers within the same school to pursue NB Certification together—had positive influences on individual teachers and the schools in which they worked. Specifically, we found:

1. Teachers strengthened aspects of their teaching through their participation in the NB Certification process;
2. Pursuing NB Certification with a group of school colleagues who received ongoing support from on-site NBCTs as well as from an expert support provider seemed to increase teachers' opportunities for learning; and
3. The project, as designed, laid the initial groundwork for changing aspects of school teaching culture—such as creating a community of teachers in which teaching became “de-privatized,” where teachers had a common focus on improving student learning, and where practices developed to support teacher learning about instruction.

These are all important elements of cultivating professional communities for teacher learning that are strongly associated with improved student performance (Seashore-Louis, et al., 2010).

Instruction

With respect to teachers strengthening their instruction, we found that teachers made changes to the way they designed student tasks, delivered individual and whole class instruction, and assessed students' performance. This was true for teachers of every subject and grade level who participated in the project, both veteran and less experienced teachers. As candidates demonstrated their commitment to students and their learning, a Core Proposition of NBPTS, they made changes in their instruction that seemed to increase students' opportunities for learning. Specifically, we found teachers looked more closely at what their students did and said than they had in the past. As a result, teachers came to know their students' strengths, interests, and needs well. In doing so, they gained insight into specific content areas that particular students needed to learn as well as how to best help those students learn that content. For example, Brad discovered that the use of language in math class might be interfering with some of his students' ability to learn concepts and to demonstrate mathematical understanding on performance tasks. In our study, we also found a reciprocal relationship between teachers looking closely at students' work and becoming better able to design instruction to meet the specific strengths, interests, and needs of their students.

The School-Based Cohort Model

Regarding the school-based cohort model of pursuing NB certification, we found that this structure, coupled with the support providers, seemed to increase teachers' opportunities for learning. This design for giving support to candidates illuminated the important role that support providers can play in developing teachers' learning and in creating the conditions for collaborative inquiry into teaching practice. We found that support providers in the project—both those located within and outside of the school—played important roles in stimulating and supporting teachers to make changes in their teaching.

Specifically, we found that the on-site and external support providers assumed different roles in the project, meeting different but complementary project goals and needs. The external support provider brought expertise to the project in terms of designing curriculum to support certification, knowing the ways to ask candidates questions to help them critically view their own teaching through the lens of the National Board Standards, and providing coaching to the school-based support provider on how to ask candidates probing questions about their teaching and its effects on student learning. We found that the on-site support providers played a different and important role by providing readily accessible emotional and logistical support to candidates as well as providing feedback to candidates on their developing portfolio entries.

The juxtaposition of the various types of support the providers offered reveals the specialized knowledge and skills that National Board support providers need as well

as some ways that newly certified NBCTs can develop this expertise. We learned that on-site providers, who were new to a support role, needed to develop their skills in providing feedback to colleagues and how to facilitate candidates' evidence-based conversations. We also learned that working alongside an experienced support provider could support NBCTs in developing these skills if the support provider assumed responsibility for doing so. Finally, we learned that the district and school conditions, including the number of support providers available within a school, affect the kind of support that on-site providers are able to offer their colleagues.

Organizational Culture

We found early indicators suggesting that the NB Certification project aided participating schools in developing organizational cultures that support continuous teacher learning. Specifically, we found evidence in both schools that project teachers began to work differently with one another and that they developed more trusting and supportive professional relationships. This different, more collaborative way of working together to examine teaching and learning led to small, but meaningful, changes in the teaching cultures at each school. These changes also aligned with cultural changes the principals were championing. For example, at Central Elementary, there was some evidence that teachers began to view and interact with families differently—a change the principal was also advocating and modeling. Changes to the teaching culture at Hollow Tree were more pronounced, and the school conditions at Hollow Tree, especially the principal's goal to have teachers develop and use formative assessments regularly to guide their teaching, closely aligned with the National Board Core Proposition that teachers are responsible for managing and monitoring student learning. At Hollow Tree, there was evidence that participating teachers became more open to making their instruction public and were more likely to examine student work with their colleagues. In addition, the team of special education teachers at Hollow Tree changed their approach to working with special education students. They redesigned the way they taught these students and how they worked with general education teachers. Designing instruction to better serve the particular needs of the students also involved creating new and more flexible organizational structures for working with the special education population at Hollow Tree.

The study suggests that organizing and supporting cohorts of teachers within the same school to pursue NB Certification supports multiple beneficial outcomes. The study also suggests, however, that other additional supports are necessary to sustain a substantive alteration of a school's professional culture. For instance, when the NB certification practices were not integrated into other instructional improvement work going on in the schools, teachers were left largely on their own to figure out how, if at all, what they were learning in the NB project connected to other school-wide instructional improvement initiatives. As a result, the professional community that developed among NB project participants existed in relative isolation from the rest of the teachers in the schools and from the principals. Thus, the study showed

that the principal has an important role to play in developing a school culture that supports continuous teacher learning and in connecting the NB Certification project work to other instructional improvement efforts going on in the school and district.

Based on our analysis, we offer four recommendations to state, district, and school policymakers for using the process of NB Certification as an approach to instructional improvement in low-performing schools.

Recommendations for Using NB Certification Process as an Improvement Strategy

Recommendation 1: Create opportunities and incentives for cohorts of teachers from within the same school and district to participate in a NB Certification project.

Evidence shows that the NB Certification process coupled with on-site support sessions provides learning experiences for teachers that positively affect students' opportunities for learning. When teachers pursue certification as part of a school cohort with expert facilitation, they become a community of practitioners who take collective responsibility for knowing their students, who learn how to examine student work for evidence of understanding, and who develop instructional problem-solving and advice-giving practices that translate into changed instructional practice in the classroom.

To create opportunities and incentives to use NB Certification processes in schools:

- **Schools** should make sufficient time, especially during the school year and within the school day, but also in the summer, for teachers to participate in the NB Certification process. Schools should consider using the NB Certification process as an approach to school-wide professional development.
- **Districts** should offer financial incentives to schools that involve 50% percent or more of their staff in NB Certification practices with additional resources provided to low-performing schools. Districts should provide resources (such as expert NBCT support providers, training for school NBCTs who want to become support providers, and funds to pay for teacher release time) to schools with significant numbers of teachers who commit to participating in the NB Certification process. Expecting principals to demonstrate how the NB Certification process is supporting school learning improvement goals could be a funding stipulation. By providing financial incentives to schools rather than individuals, NB Certification becomes an institutional good rather than an individual accomplishment.

Recommendation 2: Educate district and school administrators about how to use the NB Certification process as an approach to school-wide professional learning in order to promote a coherent approach to improving teaching and learning.

Research evidence (e.g., Seashore-Louis, Leithwood, Wahlstrom, & Anderson, 2010; Supovitz, Sirinides, & May, 2010) suggests that principals can improve teaching and

learning in school by strengthening a school’s professional community where teachers work together to improve their practice and improve student learning. Our study suggests that when there is congruence between the vision for teaching and learning in the school/district and the values of the NBPTS, the benefits of the NB approach to teaching within a school is greater. Furthermore, when a district actively values and supports the NB Certification process, as West District did, there are more NBCTs and resources on hand to provide site-based support.

Nevertheless, our study also showed that the principals who supported the process and encouraged their teachers’ involvement in NB Certification still remained quite removed from the work. Consequently, they were not well informed about teachers’ learning experiences. Their lack of information about the National Board Standards and the NB Certification process seemed to make them less able to draw upon the particular knowledge and skills that NBCTs and teacher candidates in their school were developing in order to leverage their school improvement goals. This meant that the responsibility for connecting NB work to school improvement goals was left entirely up to participating teachers. Because there was no intentional connection made for the teachers between pursuing NB Certification and principal-led school improvement practices, neither teachers nor principals saw connections between the NB experience and school goals—even when such mutually reinforcing connections actually existed.

We recommend principals be an integral part of designing and participating in the use of the NB Certification process or other efforts to incorporate the NBPTS body of knowledge and skills within schools. Principals need sufficient understanding of the NB Certification in order to know how to leverage the knowledge that teachers develop through this process for whole school improvement. In addition, districts also need to consider how NBPTS knowledge and resources can support district goals for instructional improvement. In order to realize the full value of involving teachers in the NB Certification process and any other NB related professional learning experiences, districts need to understand and thus support the potential of such efforts in their schools.

To ensure support and cohesion in the NB Certification process as an approach to school-wide professional learning:

- **Schools** should develop learning improvement plans that identify specific priority areas in their school and use the NB Certification process to support adult learning that is designed to benefit particular student populations, and/or affect specific problems of subject area teaching and learning, and/or school culture issues. Schools should involve teachers in identifying their school priority areas.
- **Districts** should support key district administrators, school principals, and teacher leaders to participate in these trainings. Financial subsidies should

be provided as an equity-oriented incentive to participants from high-need schools. Districts should educate administrators about the value of using this professional learning approach, and they should establish implementation supports for participating educators. Districts should also hold participating schools accountable for connecting the program's professional learning focus to evidence of student learning needs in their school and other school learning improvement initiatives in order to ensure coherent attention to improving teaching and learning.

Recommendation 3: Establish and support local National Board Hubs as networked communities of educators committed to the exploration and use of the NBPTS accumulated body of knowledge for accomplished teaching to improve student learning.

- **Schools** should incentivize and support (e.g., by providing release time) teachers to become expert practitioners and to act as instructional leaders within their own school, district, and regional context.
- **Districts** should establish an infrastructure (e.g., money and time) to leverage the resources of the National Board and NBCTs within the district to provide professional learning support to meet specific district goals.

Recommendation 4: Use the NB Certification processes to inform evaluation processes at the local level.

Findings from previous research and this cross-case analysis show that teachers' instruction improves and students' opportunities for learning increase when teachers participate in the NB Certification process. Since teachers are shown to improve through their intentional examination of their own teaching for evidence of the National Board Professional Teaching Standards, states should incorporate these standards and the processes by which teachers provide evidence of their accomplished teaching into state and local processes for evaluating teachers.

To use the NB Certification process to inform evaluation processes:

- **Districts** should create local policies and evaluation practices that use the NB Standards, the Architecture of Accomplished Teaching, and NB Certification processes as part of the teacher, and possibly principal, evaluation process. Districts should provide support for systematically improving principal and teacher evaluation practices that emphasize ongoing learning and explicit indicators of improvement.
- **Schools** should redesign teacher evaluation processes to emphasize teachers' ongoing learning and place the burden of proof of "the quality of

teaching” on the teachers themselves. One way to do this would be to require teachers to submit video recordings of their own teaching and/or samples of “focal” student work, along with reflective commentary about their instructional decision-making and students’ learning, much the way the NB Certification process requires candidates to do. Focal students could be selected through a specific process that involves the principal and teacher in identifying student learners who represent varied backgrounds and particular teaching challenges. Currently, most teacher evaluation processes rely upon limited classroom observations by principals with no or minimal use of quality teaching standards and measures of student learning that are not conducive to improving instruction (i.e., standardized test scores).

What Might States Do to Encourage This School Improvement Strategy?

Create opportunities and incentives for cohorts of teachers from within the same school and district to participate in a NB Certification project.

- **States** could incentivize districts to use the NB Certification process as an approach to school professional learning by allocating money, through grants and/or reimbursement for NB Certification fees. To incentivize groups of teachers from within the same school to participate, financial allocations could be proportionately tied to the percentage of school staff pursuing NB Certification. Another way to incentivize participation in the process is to tie reimbursement fees to completion rates rather than pass rates.

Educate district and school administrators about how to use the NB Certification process as an approach to school-wide professional learning in order to promote a coherent approach to improving teaching and learning.

- **States** could sponsor the development of training modules on how to use the NB Certification process as an approach to professional learning in schools that would help district and school administrators connect this process to district and school goals. States could draw upon federal funds through the Every Student Succeeds Act (ESSA) to fund school leadership development.

Establish and support local National Board Hubs as networked communities of educators committed to the exploration and use of the NBPTS accumulated body of knowledge for accomplished teaching to improve student learning.

- **States** could create NB networks of sites/hubs to function as local clearinghouses for NBPTS knowledge, including expert NB support providers. States should also pay for the development of NB support providers.

States could leverage the knowledge and expertise of NBCTs already in the state by creating NB sites/hubs that would function as a clearinghouse for NBPTS knowledge and know-how. NB Hubs should be affiliated with NBPTS through one of its national centers, which are often located on university campuses. These national centers are growing in number and expertise in eight states and two districts as the result of a multi-year federal Supporting Effective Educator Development Grant.

Much like the relationship between the National Writing Project and its local sites, NBPTS should provide a set of commonly held values, operating principals, resources, and mechanisms for accountability to its overarching vision while simultaneously expecting local sites and networks to customize the focus and design of their NB professional development work to meet local needs.

The NB Hubs would become local networks of accomplished teachers with expertise in using the NBPTS knowledge base of accomplished teaching to improve the quality of instruction in all schools. The range of subject area expertise would distinguish local NB Hubs from writing project sites, although presumably such sites could also work in strategic partnership. The NBPTS currently certifies teachers in 25 different certification areas, including special education, English Language Learners, art and music, in addition to subject areas such as math, literacy, and science. Certification is aligned to a specific grade level band within the K–12 continuum. Thus, local NB Hubs would have the potential to mobilize expertise in most subject areas and grade levels, as well as to find teachers familiar with local contexts, making the NB Hub a potentially powerful resource to help all local schools strengthen teaching and learning.

One function of NB Hubs would be to provide NBPTS resources and tools—such as the Five Core Propositions, the Architecture for Accomplished Teaching, and the National Board Standards—to districts and schools within the state. Another function of the NB Hubs would be to develop and grow NBCTs as “expert” support providers. As the study indicates, supporting teachers to critically examine their teaching and its effects on student learning requires a particular set of skills. By providing professional development to NBCTs on how to support teachers and candidates, the hubs could help convert the individual knowledge NBCTs have about teaching and student learning to support the growth and development of other teachers and administrators. With such expertise, local NB Hubs could be called upon to support local districts and schools.

NB Hubs could be used strategically by the state to help improve low-performing schools.¹⁶ NB Hubs could become a state asset for helping to support the lowest performing schools in the state, particularly those low-performing public schools that states are required to identify for assistance through the Every Student Succeeds Act. For instance, in California the newly created California Collaborative of Educational Excellence (CCEE) and county offices of education are now being called upon to hold districts accountable for developing meaningful Local Control Accountability Plans (LCAPs). The LCAPs are the state’s accountability measure for districts to make sure all students are educated to a high standard. Yet, neither the CCEE and nor the county offices of education currently have sufficient expertise or capacity to

¹⁶ See *Teacher Professional Learning in the United States: Case Studies of State Policies and Strategies* (2010) for the manner in which Missouri strategically deploys its 9 Regional Professional Development Centers to assist failing schools.

adequately perform this function. Local NB Hubs could be one source for providing this expertise. They would be an asset deployed to assist local practitioners to develop practices and routines for school improvement, such as ways to examine the relationship between instruction and student learning in order to better identify and meet our goals for student learning.

As is evident from research and experience, improving low-performing schools is steady and time-consuming work that requires developing the capacity of practitioners within these settings to learn how to teach and lead more effectively. The creation of NB Hubs as a state-supported resource could be instrumental in helping state organizations, such as the CCEE and county offices of education in California, to perform their new support function. Increasingly, states and districts will need to call upon such organizations to support local districts with struggling schools. Strategic deployment of NBPTS resources through local NB Hubs could help meet a growing need for more local access to instructional expertise, as well as knowledge of how to increase teachers' instructional expertise in local schools.

Use the NB Certification processes to inform evaluation processes at the state level.

- **States** should use the National Board Standards, the Five Core Propositions, and the Architecture of Accomplished Teaching to inform and develop teacher evaluation processes that draw upon the performance aspects of the National Board Certification process.

Adopt an R&D approach to the use of National Board knowledge and materials.

- **States** could invest in an R&D approach to using the body of knowledge accumulated by the National Board, including the NB Certification process, to improve student performance in low-performing schools. This work, for example, could become a part of each state's Teacher Equity Plans.

Developing local knowledge for improving the quality of student learning in local low-performing schools will require a sustained commitment by states, districts, and schools to support continuous development of excellent teaching and effective school and district leadership focused on learning improvement. Using the National Board's accumulated body of knowledge of accomplished teaching in various contexts in order to support instructional improvement is a promising idea. In order to realize the potential of this idea, it will be critical to document and study how, if at all, these mechanisms designed to support the use of the NBPTS body of knowledge of accomplished teaching are able to contribute to turning around low-performing schools. A research and design approach can document and codify knowledge of what works under what conditions for future use.

Conclusion

This study provides examples of teachers who made improvements to their teaching, increased students' opportunities for learning, and altered the way they worked with school colleagues so that teachers were able to learn in and from their own teaching. As a result of this project, which leveraged participation in the NB Certification process as an approach to collective professional learning within schools, we are able to see how collective learning experiences focused on examining the relationship between instruction and student performance can begin to shift the teaching culture within schools, particularly in schools where teachers are accustomed to working in isolation and are not used to closely examining student work with their colleagues for evidence of learning.

This project highlights several important design features that are necessary to leverage the NB Certification process for collective learning. This study also suggests some promising directions that state and local policymakers can take to make it possible for more schools and districts to engage in this capacity-growing use of the NB Certification process. In order for more districts and schools to use the NB Certification process and other NBPTS resources to develop educators' collective capacity to pursue ambitious approaches to teaching and learning that respond to students' strengths, interests, and needs—particularly in schools where students have not performed as well as their peers on standardized measures of achievement—educators need policies that support them in this endeavor. Without state and local policies that make it possible for the NB Certification process to become a lever for growing the collective instructional capacity within all our educational communities, examples where such teaching and learning occurs will remain relatively rare and modest in scale.

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Appendix A: Dimensions of Knowing Students

Dimensions of Knowing Students

Dimension of knowledge of students	Teaching practices I use to acquire and broaden knowledge of students in this area	Evidence that I know this and apply this knowledge in classroom practice
<p>Making knowledge accessible to all students</p> <ul style="list-style-type: none"> • Understanding of students' background experiences and knowledge • Previous school performance • Interests both in and out of school • Special skills • Preferred learning styles • Special challenges • Attitudes about school 		
<p>Knowledge of how students of this age develop and learn</p> <ul style="list-style-type: none"> • Intellectual/cognitive stage (What is appropriate for children of this age to learn?) • Physical (Typical growth patterns, physical abilities, needs for movement, etc.) • Social (How do children of this age relate to peers, negotiate relationships and problems that arise with others, establish trust with adults, etc.?) • Emotional (How do children at this age cope with frustrations, exhibit joy or sadness? What do they need to feel secure and develop confidence?) 		

(Continued)

Dimension of knowledge of students	Teaching practices I use to acquire and broaden knowledge of students in this area	Evidence that I know this and apply this knowledge in classroom practice
<p>Respect and consideration for individual cultural, linguistic, and family differences</p> <ul style="list-style-type: none"> • What are unique skills and personality traits that sets this child apart? • Where does the child live? Who are her caretakers? • What is the child’s ethnicity? What are the characteristics he shares with his ethnic group that I need to know to teach him well and relate to him and his family? • What language(s) does the child speak? Who speaks to him at home and in what language? What is the nature of the conversations he has with parents/other adults? • What expectations of the child does the family have? What are their goals for the child? Are these shared? • What are the attitudes about school and academic achievement in student’s home? 		
<p>Knowledge of students’ self-concept, motivation, relationship with peers and adults</p> <ul style="list-style-type: none"> • Is the child a confident learner who attempts tasks eagerly? • Is the child happy to be at school and eager to learn? • Is the child proud of her accomplishments? • Does she get along well with other children? • Does this child develop trusting relationships with adults and is she able to ask for and accept help from them? 		
<p>Character and civic responsibility</p> <ul style="list-style-type: none"> • Is the child respected and liked by others? • Is he able to make good choices? • What responsibilities does he normally assume at home? At school? • Is she conscientious about her work and expectations? 		

Appendix B: Overview of Certification Area Portfolio Requirements

Early and Middle Childhood/English as a New Language

http://boardcertifiedteachers.org/sites/default/files/ENL_EMCC_Portfolio_Instructions_FINAL.pdf

Portfolio Entries

Entry 1

Assessment as a Tool for Unit Planning In this entry, you submit two assessments for each of two students, as well as a Written Commentary that provides an overview of your unit plan and contextualizes the assessments as they are used to inform your planning. You describe the implementation of the unit plan and any adjustments you made to your teaching during the implementation. You discuss how the students' assessments, as well as their linguistic and cultural diversity, informed your planning.

Entry 2

Scaffolding Learning In this entry, you submit a 15-minute video recording that illustrates your ability to apply your knowledge of your students as individual content and language learners as you set worthwhile and realistic goals for them and prepare them for the study of a unit, topic, or concept that is new to them. You discuss your instructional objectives, adaptation of instructional resources, and approach to second-language acquisition. You provide evidence that your students are actively engaged with each other, their materials, and/or you in a content-based English language learning experience. You provide a Written Commentary analyzing the video recording and instructional materials.

Entry 3

Facilitating Interactions: Small Groups In this entry, you submit a 15-minute video recording to demonstrate your practice and your ability to facilitate small interactive groups of linguistically and culturally diverse learners who are engaged in collaborative work. You provide evidence of how you foster the engagement of students in a meaningful English language activity in which students share ideas and listen attentively to each other. You provide a Written Commentary analyzing the video recording and instructional materials.

Entry 4

Documented Accomplishments: Contributions to Student Learning In this entry, you illustrate your partnerships with students' families and community, and your development as a learner and collaborator with other professionals, by submitting descriptions and documentation of your activities and accomplishments in those areas. Your description must make the connection between each accomplishment and its impact on student learning.

Early Childhood through Young Adulthood/Exceptional Needs Specialist

http://boardcertifiedteachers.org/sites/default/files/ENS_ECYA_Portfolio_Instructions_FINAL.pdf

Entry 1

Assessment Informs Instruction In this entry, you demonstrate your ability to investigate a student's learning or behavior need, formulate a meaningful question directly related to that student's need, design and/or select and then use an assessment tool or tools, use the information gathered to implement new or modified goals, and then instruct in order to address the student's learning or behavior need. You provide a question document, an assessment tool(s) document, and a Written Commentary.

Entry 2

Fostering Communication and Literacy Development In this entry, you demonstrate how you design and implement instruction that furthers student learning in communication or literacy. You provide evidence of your ability to plan and deliver instruction to a student of your choosing and analyze and reflect on your work with this particular student. You provide a Written Commentary in addition to your 15-minute video recording.

Entry 3

Enhancing Social/Emotional Development In this entry, you demonstrate how you design and implement meaningful learning experiences to further an individual student's social and/or emotional development and to facilitate that student's participation in a group and/or environment. You provide evidence of your ability to plan and implement meaningful learning experiences for a student of your choosing and analyze and reflect on your work with this particular student. You provide Written Commentary in addition to your 15-minute video recording.

Entry 4

Documented Accomplishments: Contributions to Student Learning In this entry, you illustrate your partnerships with students' families and community, and your development as a learner and collaborator with other professionals, by submitting descriptions and documentation of your activities and accomplishments in those areas. Your description must make the connection between each accomplishment and its impact on student learning.

Overview of Early Childhood/Generalist Portfolio Entries

http://boardcertifiedteachers.org/sites/default/files/Gen_EC_Portfolio_Instructions_FINAL.pdf

Entry 1:

Examining Children's Literacy Development In this entry, you select two children to feature as examples of your work with children in fostering literacy development. Your approach to assessment of the children's abilities and needs, your response to that assessment in the design and implementation of instruction, a Written Commentary that provides an analysis and a context for your instructional choices, and selected work samples demonstrating the children's literacy development are the focus of this entry.

Entry 2

Building a Learning Environment In this entry, you submit a 15-minute video recording that demonstrates your knowledge and ability to deepen children’s understanding of a social studies topic, concept, or theme; your ability to integrate the arts (visual arts, music, drama); and your interaction with children during whole-class or small-group discussion that illustrates your approach to creating a climate in the learning environment that promotes children’s development of social and interpersonal skills. You provide a Written Commentary analyzing the video recording and instructional materials.

Entry 3

Integrating Mathematics and Science In this entry, you submit a 15-minute video recording of and instructional materials for an integrative learning sequence designed to deepen children’s understanding of mathematics and science concepts through unifying concepts and processes in science and to develop children’s skills in using mathematical and scientific ways of observing, thinking, reasoning, and communicating. You provide a Written Commentary analyzing the video recording and instructional materials, including your use of technology to support children’s learning

Entry 4

Documented Accomplishments: Contributions to Student Learning In this entry, you illustrate your partnerships with children’s families and community, and your development as a learner and collaborator with other professionals, by submitting descriptions and documentation of your activities and accomplishments in those areas. Your description must make the connection between each accomplishment and its impact on student learning.

Overview of Middle Childhood/Generalist Portfolio Entries

http://boardcertifiedteachers.org/sites/default/files/Gen_MC_Portfolio_Instructions_FINAL.pdf

Entry 1

Writing: Thinking through the Process In this entry, you demonstrate your use of writing to develop students’ thinking and writing skills for different audiences and purposes. You provide evidence of your planning and teaching, and your ability to describe, analyze, and use student work to reflect on your practice. You submit a Written Commentary, two assignments/prompts, instructional materials, and four student responses.

Entry 2

Building a Classroom Community through Social Studies In this entry, you demonstrate your ability to describe and illustrate how you sustain a classroom environment that supports students’ growth, learning, social and emotional development, and emerging abilities to understand and consider perspectives other than their own through a social studies/history theme, issue, or topic. You also display your ability to observe and analyze the interactions in your classroom. You submit a Written Commentary, a 15-minute video recording, and two instructional materials.

Entry 3

Integrating Mathematics with Science In this entry, you demonstrate how you help students better understand unifying concepts and processes in science using relevant science and mathematical knowledge. You engage students in the discovery, exploration, and implementation of these science and mathematics concepts, procedures, and processes by integrating these two disciplinary areas. This entry is designed for you to provide evidence of your ability to plan, describe, illustrate, assess, and reflect on your teaching practice. You submit a Written Commentary, a 15-minute video recording, and four instructional materials.

Entry 4

Documented Accomplishments: Contributions to Student Learning In this entry, you illustrate your partnerships with students' families and community, and your development as a learner and collaborator with other professionals, by submitting descriptions and documentation of your activities and accomplishments in those areas. Your description must make the connection between each accomplishment and its impact on student learning.

Early and Middle Childhood/Literacy: Reading

http://boardcertifiedteachers.org/sites/default/files/LRLA_EMCC_Portfolio_Instructions_FINAL.pdf

Entry 1

Promoting Literacy Development through Writing In this entry, you select one student to feature as an example of your work with students in promoting literacy development through writing. You submit two work samples from the selected student. You also submit a Written Commentary. Your approach to assessment of the student's needs, analysis of that assessment in the design and implementation of instruction, and selected work samples demonstrating the student's writing development over a period of time are the focus of this entry.

Entry 2

Constructing Meaning through Reading In this entry, you submit a 15-minute video recording, a Written Commentary, and instructional materials that demonstrate your knowledge of the reading process and your ability to nurture learners in their growth as readers through your use of assessment and instructional materials.

Entry 3

Integration of Listening, Speaking, Viewing, and Visual Literacy In this entry, you submit a 15-minute video recording, a Written Commentary, and instructional materials of an interdisciplinary lesson integrating technology that demonstrates your knowledge and understanding of the relationship between listening, speaking, and viewing in literacy development.

Entry 4

Documented Accomplishments: Contributions to Student Learning In this entry, you illustrate your partnerships with students' families and community, and your development as a learner and collaborator with other professionals, by submitting descriptions and documentation of your activities and accomplishments in those areas. Your description must make the connection between each accomplishment and its impact on student learning.

Early Adolescence/Mathematics

http://boardcertifiedteachers.org/sites/default/files/EA_Math_Portfolio_Instructions_FINAL.pdf

Entry 1

Developing and Assessing Mathematical Thinking and Reasoning In this entry, you choose two instructional activities and two student responses to each activity that demonstrate how you are able to design a sequence of learning experiences that builds on and gives you insight into students' conceptual understanding of a substantive idea in mathematics, within the context of instruction that enhances students' abilities to think and reason mathematically. You also submit a Written Commentary that provides a context for your instructional choices and describes, analyzes, and reflects on your teaching.

Entry 2

Instructional Analysis: Whole-Class Mathematical Discourse In this entry, you provide a 15-minute video recording of a lesson that demonstrates how you use a classroom discussion and targeted questioning to develop student understanding about an important mathematical idea. You provide evidence of your ability to engage students in mathematical discourse as the whole class investigates, explores, or discovers important mathematical concepts, procedures, or reasoning processes within a stimulating and inclusive environment that promotes student development of mathematical power. You provide a Written Commentary analyzing the video recording and instructional materials and reflecting on the lesson from which the video recording was taken.

Entry 3

Instructional Analysis: Small-Group Mathematical Collaborations In this entry, you provide a 15-minute video recording of a lesson that demonstrates how you interact with students working in small groups in order to promote mathematical discourse and to develop student understanding about an important mathematical idea. You are required to show how you use manipulative materials or appropriate technology to provide access to or deepen mathematical understanding. You also show how you model questioning strategies and mathematical thinking and reasoning processes to promote interactions between you and the students, as well as among the students in small groups. You provide a Written Commentary analyzing the video recording and instructional materials and reflecting on the lesson from which the video recording was taken.

Entry 4

Documented Accomplishments: Contributions to Student Learning In this entry, you illustrate your partnerships with students' families and community, and your development as a learner and collaborator with other professionals, by submitting descriptions and documentation of your activities and accomplishments in those areas. Your description must make the connection between each accomplishment and its impact on student learning.

Early and Middle Childhood/Physical Education

http://boardcertifiedteachers.org/sites/default/files/PE_EAYA_Portfolio_Instructions_FINAL.pdf

Entry 1

Instruction to Facilitate Student Learning In this entry, you submit a Written Commentary, instructional materials, and a 20-minute video recording that demonstrates your ability to engage all students in sequenced motor-skill instruction while integrating related cognitive concepts. You also address how you promote the value of lifelong physical activity for your students.

Entry 2

Assessment for Student Learning In this entry, you select and submit two assessments with instructional materials and two students' responses that demonstrate your ability to tie assessment to learning goals. You also show how results of assessments are used to inform instruction. You also submit a Written Commentary analyzing your teaching.

Entry 3

Creating a Productive Learning In this entry, you submit a Written Commentary, instructional materials, and a 20-minute video recording that demonstrates how you manage the transition of learning activities; shows how you promote learning in a physically, socially, and emotionally safe environment; and highlights your ability to promote physical activity for a lifetime.

Entry 4

Documented Accomplishments: Contributions to Student Learning In this entry, you illustrate your partnerships with students' families and community, and your development as a learner and collaborator with other professionals, by submitting descriptions and documentation of your activities and accomplishments in those areas. Your description must make the connection between each accomplishment and its impact on student learning.



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