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# Connecting Curriculum and Instruction to National Teaching Standards

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## **Abstract**

*Meeting the requirement for highly qualified teachers as outlined in the No Child Left Behind Act has left school districts in a quandary, especially those that serve a population of students deemed “at-risk” and where attracting and retaining highly qualified teachers is difficult. One professional development program based on recognized strategies for exemplary teaching—the National Board for Professional Teaching Standard’s five core propositions—is being tested in one school district in Illinois. This article presents preliminary data regarding the effectiveness of this program.*

Teachers historically have been expected to be agents of change or teacher leaders. As educators, they are expected to advance students’ academic, social, and emotional well-being, and are presumed to promote the values and beliefs that students must embrace to contribute to and advance a democratic society (Rearick and Feldman 1999). The profession’s educational reform efforts increasingly have put pressure on teachers to be change agents beyond the classroom walls, to encourage student learning, to lead school-level reform efforts, and to add to the advancement of their profession. As Darling-Hammond (1987, 356) stated 20 years ago, “The responsibility for shaping schooling must permeate the teaching force, or schools will not change in substantial ways.”

Teacher leadership takes many forms: designing curricular and instructional programs, working effectively with colleagues and parents, developing and implementing school-level policies and procedures, and sharing expertise and wisdom of practice with novices. Yet, the typical classroom teacher is not prepared for these diverse leadership roles. In addition to possessing the qualities associated with outstanding classroom teaching, he or she also must be an effective collaborator with the ability to promote school-level change. Price and Valli (2005, 67) found that even preservice teachers

must embrace the notion of “teacher as change agent . . . [because] such a role is not only feasible for student teachers but preferable.”

So, how can teacher educators provide preservice and practicing teachers with opportunities to acquire the knowledge and skills required to be agents of change and to adopt increasing types of leadership roles? One strategy is to provide teachers with professional development that addresses these issues through programs based on the National Board for Professional Teaching Standard’s (NBPTS 2006a) 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.
5. Teachers are members of learning communities.

### ***Policy Context***

Since the release of *A Nation at Risk: The Imperative for Educational Reform* (National Commission on Excellence in Education 1983), legislative agendas and national reports have reshaped teacher certification and professional development. *A Nation at Risk* generated extensive attention to America’s educational system and motivated national and state commissions and task forces across the country to acknowledge the problems in education. To address these shortcomings, the Commission (1983) outlined four major recommendations:

1. Graduation requirements should be strengthened so that all students establish a foundation in five new basics: English, mathematics, science, social studies, and computer science.
2. Schools and colleges should adopt higher and measurable standards for academic performance.
3. The amount of time students spend engaged in learning should be significantly increased.
4. The teaching profession should be strengthened through higher standards for preparation and professional growth.

Many education reports soon followed the agenda put forth by *A Nation at Risk*. For example, *A Nation Prepared: Teachers for the 21st Century* (Carnegie Forum on Education and the Economy’s Task Force on Teaching as a Profession 1986) called for improvement in the teaching profession by creating and applying more rigorous standards. To reach this goal, two major recommendations emerged. First, teacher preparation should be extended to 5–6 years. Second, a board with the charge of establishing national teaching standards should be established. Overall, the Carnegie Forum’s recommendations were designed to attract more able people to teaching, to better prepare them for the classroom, and to provide them with improved professional status and corresponding pay incentives.

Concurrently, the Holmes Group released its reform report *Tomorrow’s Teachers* (1986). Unlike the commissions that produced the two reports mentioned previously, the member-

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ship of the Holmes Group was comprised of education deans interested in involving major research universities in improving the quality of teacher education. The Holmes Group (1986, 4) identified five goals:

1. *To make the education of teachers more solid intellectually.* Teachers need a greater command of academic subjects and the skills to teach them. Prospective elementary teachers need a more in-depth study of the subjects they will teach. Prospective secondary teachers need increased study of pedagogy.
2. *To recognize differences in teachers' knowledge, skills, and commitment in their education, certification, and work.* A distinction is needed between novices, competent members of the profession, and high-level professional leaders.
3. *To create standards of entry to the profession—examinations and educational requirements—that are professionally relevant and intellectually defensible.* National, standardized examinations should be required for all beginning teachers.
4. *To connect our own institutions to schools.* Expert teachers must be used more effectively in the education of other teachers and in research on teaching. Schools should be places where both teachers and university faculty members can inquire into practice to improve it. Professional development schools analogous to teaching hospitals should be established.
5. *To make schools better places for teachers to work and to learn.* Less bureaucracy, more professional autonomy, and more leadership opportunities for teachers are needed.

Both the Carnegie and Holmes reports considered national control of the certification process the best way to achieve standardized teacher certification. National certification would provide a forum for increased participation by professional education organizations in establishing standards and certification procedures. In response to the recommendations by the Carnegie Forum and the Holmes Group, the NBPTS was created in 1987.

Nine years later, the National Commission on Teaching and America's Future (NCTAF) released its report *What Matters Most: Teaching for America's Future* (1996).

The Commission (1996, 10) based its recommendations on three simple premises:

- What teachers know and can do is the most important influence on what students learn.
- Recruiting, preparing, and retaining good teachers is the central strategy for improving our schools.
- School reform cannot succeed unless it focuses on creating the conditions in which teachers can teach and teach well.

Emphasis was placed on all students having the right to be taught by competent teachers, and teachers having the right to high-quality preparation, induction, and professional development. The report recommended using standards developed by the NBPTS as the cornerstone for teacher development and evaluation.

## *Highly Qualified Teachers for Every Student*

The need to place a highly qualified teacher in every classroom was exacerbated when No Child Left Behind (NCLB), the reauthorization of the 1965 Elementary and Secondary Education Act, was signed into law by President George W. Bush in January 2002. One of

the major requirements of this law was to have a highly qualified teacher in every classroom by the 2005–2006 school year (U.S. Department of Education 2002).

This provision in NCLB created a flurry of activity in state boards of education, higher education, and school districts to provide courses and professional development opportunities that enable teachers to meet highly qualified teacher requirements. For practicing teachers, NCLB mandated that states and school districts identify and recognize teachers who effectively enhance student learning and demonstrate high levels of knowledge, skills, abilities, and commitments.

One strategy used by teacher educators is to align teacher preparation and professional development with NBPTS's (2006a) five core propositions. When NBPTS was created in 1987, it set about establishing high and rigorous standards for what teachers should know and be able to do and creating a mechanism to assess accomplished teaching. Subsequently, institutions of higher education have aligned teacher preparation and graduate programs with these standards to facilitate the continuum of professional growth and development, and schools and districts across the country have followed suit.

Currently, NBPTS offers certification in 24 areas (NBPTS 2006b). Though state teaching license standards vary from state to state, National Board Certification standards are uniform across the country. Support for NBPTS is widespread, including backing from legislators, state and local school boards, the two largest teacher unions in the United States, teacher educators, and classroom teachers. According to Berry and King (2005, 1), "Most teachers who seek Board Certification claimed that the process offers the most rigorous professional development experiences they have ever had."

NBPTS began certifying teachers in 1993. As of the end of 2006, NBPTS had certified more than 55,000 teachers (NBPTS 2006c). Illinois alone is home to 1,987 NBCTs (NBPTS 2006d).

### *One State's Approach*

Professional development programs leading to National Board Certification are prominent in Illinois. The State Board of Education (2003) has issued regulations, such as Title 23, Part 25 of the Illinois Administrative Code, that incorporate NBPTS into requirements for movement through the three levels of teacher certification—initial, standard, and master. One option for moving from initial to standard certification is the completion of an approved graduate education course based on NBPTS. Paths to renewing the standard certificate include completion of the National Board Certification process or completion of a series of portfolio entries whose components reflect NBPTS's five core propositions. Master certification is awarded solely to teachers who achieve National Board Certification. Illinois has provided incentives for teachers to engage in the National Board Certification process, such as funding the application fee and paying stipends to NBCTs who act as mentors to other teachers.

Northern Illinois University (NIU), in collaboration with Rock Valley College and Rockford (Illinois) Public School District 205 (RPS 205), was awarded a Teacher Quality Enhancement grant from the U.S. Department of Education in 2004. Project REAL (Rockford Education Alliance), a comprehensive and mutually beneficial partnership between NIU

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and four at-risk schools in RPS 205 with a focus on improving student performance and enhancing the quality of educators, resulted from this grant.

Shared decision making, teacher recruitment, teacher education reform, extended preservice clinical experiences, professional development, and instruction on effective instructional leadership are key objectives of Project REAL. The ultimate goal of Project REAL is to raise student achievement so that a minimum of 75 percent of students from the four RPS schools that are involved in the project meet or exceed standards on Illinois assessments within five years, particularly in reading and mathematics.

Professional development aligned with NBPTS's (2006a) five core propositions is being used to address many of Project REAL's objectives. This approach was chosen because NBCTs are perceived as leaders in the development and implementation of curriculum and instructional programs and because, in Illinois, National Board Certification is a critical element in teachers' movement from initial certification to master teaching certification and in the five-year standard recertification.

Another objective of Project REAL is to develop a sustained mentoring and professional development program focused on retaining teachers and enabling them to become nationally certified. Thus, another measurable outcome of the project is that by 2009, when the grant ends, at least 25 teachers from the four partner schools in RPS 205 would become nationally certified.

To enable teachers to progress through the certification levels in Illinois and to become nationally certified, NIU Curriculum and Instruction faculty members, in collaboration with NBCTs, created and implemented a Certificate of Graduate Study (CGS) in Advanced Teaching Practices. CGS requires 15 semester hours of study that includes the following components: a course on connecting curriculum and instruction to national teaching standards, a course on creating learning communities, a course on teachers' areas of certification, an internship, and a field study. In the first two CGS courses, teachers put together practice portfolio entries and receive helpful feedback. Assessment center preparation is individualized based on certificate area. Teachers in like certificate areas are matched with NBCTs to design individual plans for the assessment center. Teachers finalize their actual portfolio entries for submission to NBPTS in the last two courses, as well as complete the assessment center portion of the process.

Thirty-eight teachers in RPS 205 began working toward their CGS in 2005, and already have completed a series of portfolios that reflect NBPTS's core propositions, and are working toward completing the assessment portion. A second group of 41 teachers in RPS 205 began working toward their CGS in 2006. Prior to starting their first class in the CGS, all of these teachers were given a pretest survey. Upon completion of that first course, a posttest was given.

### *Methodology and Results*

Data were derived from pre- and posttests taken by RPS 205 teachers that were involved in their first NBPTS course. The intent of this beginning course was to provide pre-K-12 teachers in RPS 205 with knowledge of the NBPTS standards so that they could assist preservice and early career pre-K-12 teachers in teaching, learning, and classroom management. The 2005 cohort of teachers (n=38) took this course during the spring of 2005, while the 2006 cohort (n=41) took it in the spring of 2006.

Demographically, the two cohorts were similar. In the 2005 cohort, 35 individuals were pre-K–12 teachers from four of the RPS partner schools, 31 were female, and 35 identified themselves as European American. Twenty teachers had 9–11 years of teaching experience, while 29 held a master’s degree. In the 2006 cohort, 37 participants were pre-K–12 teachers from the RPS partner schools, 33 were female, and 35 identified themselves as European American. Twenty-four of the 41 teachers in the sample had 9–11 years of teaching experience, while 29 held a master’s degree.

Pre- and posttest instruments were used to collect initial data. For every instrument implemented (whether newly created or existing), its score was examined for reliability and matters of internal consistency and inter-rater reliability. The concept of reliability refers to scores—not a test or an instrument—and provides an account of the data under study. Reliability is sensitive in terms of changes in sample composition and score variability. Thus, the reliability of scores is coupled directly with a specific instrument and is related to particular person(s) within a certain time and context. For the Cronbach’s alpha score, a range of .70 to 1.00 is considered sufficient for measuring internal consistency. For example, an alpha of .884 on the domain “Knowledge of Designing Various Lessons” for the 2005 cohort was very high—an indication that the items on the instrument for this particular domain shared 78 percent of the variance (i.e., .8842). This score is desirable because co-relational results increase by having greater variance to predict. Tables 1, 2, and 3 indicate that the score reliability for the NBPTS pre- and posttests was high and, indeed, measured what was intended to be measured with small parameters of error (the CI or confidence intervals).

**Table 1. Score Reliability for NBPTS Lessons: Pretest**

Domain	Number of Questions	Cronbach’s Alpha 95% CI 2005 Cohort	Cronbach’s Alpha 95% CI 2006 Cohort
Knowledge of Designing Various Lessons	10	.884 (.820, .932)	.888 (.829, .933)
Practice of Implementing Said Lessons	10	.807 (.701, .887)	.923 (.882, .954)
Overall Alpha for the Pretest	20	.869 (.801, .923)	.920 (.880, .952)

**Table 2. Score Reliability for NBPTS Lessons: Posttest**

Domain	Number of Questions	Cronbach’s Alpha 95% CI 2005 Cohort	Cronbach’s Alpha 95% CI 2006 Cohort
Knowledge of Designing Various Lessons	10	.885 (.775, .915)	.837 (.751, .902)
Practice of Implementing Said Lessons	10	.878 (.810, .928)	.831 (.742, .899)
Overall Alpha for the Posttest	20	.900 (.847, .941)	.847 (.770, .907)

**Table 3. Score Reliability for NBPTS Process: Pretest and Posttest**

Domain	Number of Questions	Cronbach's Alpha 95% CI 2005 Cohort	Cronbach's Alpha 95% CI 2006 Cohort
Knowledge of NBPTS Process; Overall Alpha for the Pretest and Posttest	4	.759 (.604, .863)	.787 (.656, .877)

Tables 4 and 5 focus on teachers' knowledge of the overall NBPTS process and of their certification area, regardless of any groups into which they may have been categorized, such as years of teaching experience. Dependent sample t-tests show the difference in teachers' overall responses to questions about NBPTS before the introductory course and their responses after the intervention. As expected, the results in Tables 4 and 5 indicate that the scores on the posttest were higher than the scores on the pretest for both cohorts (negative values such as negative t-values, pre-post mean difference, or Cohen's d are indicative of this). For example, for Q11, the mean score for the 2005 cohort increased from 1.76 on the pretest to 2.68 on the posttest, using a 1 to 4 Likert scale.

**Table 4. Dependent Sample T-Tests: 2005 NBPTS Course; Cohort n = 38**

Domain	Pre/Post Mean	T-value	Significance	Effect Size (d) and Power
Q11: Knowledge of NBPTS Certification Process	Pre = 1.76 Post = 2.68 Difference = -.921	-7.239	.000*	-1.38 1.00
Q12: Knowledge of NBPTS in Certification Area	Pre = 1.63 Post = 2.58 Difference = -.947	-6.726	.000*	-1.36 .99

\* Statistically significant at the .001 level.

**Table 5. Dependent Sample T-Tests: 2006 NBPTS Course; Cohort n = 41**

Domain	Pre/Post Mean	T-value	Significance	Effect Size (d) and Power
Q11: Knowledge of NBPTS Certification Process	Pre = 1.68 Post = 3.02 Difference = -1.34	-10.413	.000*	-2.37 1.00
Q12: Knowledge of NBPTS in Certification Area	Pre = 1.54 Post = 2.93 Difference = -1.39	-9.690	.000*	-2.05 1.00

\* Statistically significant at the .001 level.

Effect sizes show the extent, strength, or effect of a relationship or mean difference. An examination of effect sizes allows researchers to evaluate the statistical significance or importance of the result, not just the probability of the result. Effect sizes (d) of .20, .50, and .80 typically represent small, medium, and large effects, respectively. For Q11 in Table 4, this gain in scores statistically was significant at the .001 level and had the practical significance of increasing by nearly 1.5 standard

deviations (Cohen's *d* effect size) from pretest to posttest. That is, 1.5 standard deviations separated these two means—a substantial difference on a scale that ranges only from 1 to 4 points.

Lastly, the power of a test is the probability of correctly rejecting the null hypothesis when it is false. The acceptable level of power often is at .80 or higher, which means that an 80 percent probability of achieving statistically significant results exists. For example, in Table 4, Q12 had a power level equal to .99, meaning that if a statistically significant mean difference occurred on this item between the pre- and posttest, the chance of detecting this difference was 99 percent. In other words, an effect would have been discovered 99 out of 100 times.

### **Conclusions and Future Research**

In 2005, the Center for Teaching Quality brought together more than 550 NBCTs, administrators, and policy makers to discuss ways to recruit and retain teachers for North Carolina's neediest schools. Of six recommendations made by this group, the CGS in Advanced Teaching Practices encapsulates five of these recommendations (Berry et al. 2006):

1. *Create opportunities for all teachers to teach effectively in high-needs schools.* Of the 2005 cohort, the majority have completed the five courses in the CGS, including completing the portfolio process and the assessment center portion. The classroom-based portfolio entries include an analysis of student work, videotaped lessons, and documented accomplishments outside of the classroom. The assessment center activities show expertise in content. The 2006 cohort is engaged in the CGS process and will complete it in the spring of 2007. Before any of the teachers began the process, faculty members from CGS provided them with an in-depth look at standards-based teaching and learning, and applications in their classrooms.
2. *Develop NBCTs as leaders for high-need schools.* In addition to offering the CGS to 79 teachers, NBCTs and faculty members from NIU continue to work with teachers after they receive National Board Certification to increase their leadership abilities through additional course work leading to a master's or doctoral degree; offer workshops on teacher leadership, including mentoring of new teachers and those going through the National Board process; and connect teacher leaders with administrative leaders to integrate knowledge and skills for improving at-risk schools.
3. *Create an array of incentives to attract NBCTs and other accomplished teachers to high-needs schools.* The State of Illinois currently offers teachers who achieve National Board Certification a master teaching certificate, a \$3,000 stipend for the 10-year length of the certificate, and additional monies for mentoring teachers in high-need schools. Additionally, teachers earn 15 hours of graduate credit. Through the CGS, teachers meet at least once a week with NBCTs and colleagues to discuss their practice. The graduate credit is paid for through the Project REAL grant.
4. *Create the conditions necessary for developing NBCTs inside high-need schools.* Since the 2005 cohort began the process, the power of CGS spread throughout RPS 205. Enthusiasm for the program and continued funding support allowed a second group of teachers (2006 cohort) the opportunity to go through the process. Building a cadre of NBCTs in RPS 205 has the potential to impact teaching and learning throughout the system.
5. *Build awareness among policy makers, practitioners, and the public about the importance of having NBCTs in high-need schools.* In Illinois, faculty members from NIU have taken a leadership role by regularly presenting at and attending meetings of the Illinois NBPTS University Alliance, sponsored by the Illinois NBPTS Resource Center. Faculty members also have



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worked collaboratively with NBCTs in the design and implementation of the CGS. The research from this project has been disseminated at national and regional conferences, and information on National Board Certification has been presented multiple times to teachers and administrators in RPS 205.

Myriad research projects are underway to determine the relationship between NBCTs and student learning. Data collection after each stage of the National Board process will continue via surveys with teachers. Results from both cohorts after completion of the first CGS course were positive and indicated that teachers were starting to think differently about teaching and learning and were connecting curriculum and instruction to national teaching standards. Further, the preliminary data from the NBPTS initiative should help Project REAL achieve its goal of ensuring that a minimum of 25 pre-K–12 teachers from the four RPS 205 partner schools have knowledge of and practice the five core propositions of NBPTS.

The next research step is to determine the effectiveness of the CGS by collecting data on the relationship between the program and teachers' confidence levels as a result of going through the portfolio and assessment center processes. More importantly, however, is to establish the number of teachers who become NBCTs and remain in the four RPS partner schools.

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