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National Board Certification: The Impact on Teaching Practices of Three Elementary Teachers

A dissertation

presented to

the faculty of the Department of Educational Leadership and Policy Analysis

East Tennessee State University

In partial fulfillment

of the requirements for the degree

Doctor of Education in Educational Leadership

by

Amy W. Hall

August 2012

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Keywords: National Board Certification, Best Practices, Educational Leadership, Educational

Evaluation

ABSTRACT

National Board Certification: The Impact on Teaching Practices of Three Elementary Teachers

by

Amy W. Hall

During the past century the educational reform movements focused on the need for highly qualified teachers based on research surrounding the effects on student achievement related to the quality of the teacher (Busatto, 2004). The National Board for Professional Teaching Standards (NBPTS) was created in 1987 in response to the increasing focus placed on having quality teachers (Berg, 2003; Humphrey, Koppich, & Hough, 2005; NBPTS, 2011). The NBPTS is an organization governed by teachers that emphasizes sound instructional practices and improving teaching. The standards for National Board Certification are based on solid research that recognizes education practices that result in improvement in student achievement (NBPTS, 2012b). If the National Board Certification process identifies effective teachers, then the classroom practices of those teachers should demonstrate research-based best practices in their everyday instruction. The purpose of this study was to explore the everyday instructional practices of 3 Nationally Board Certified (NBC) teachers who taught grades 4 and 5 in east Tennessee. This study was a multi-site, qualitative study that included classroom observations, semi-structured interviews, and checklists to conduct descriptive and evaluative case studies involving 3 Nationally Board Certified teachers who taught in counties located in east Tennessee. Research conducted by Marzano, Pickering, and Polluck (2001) identified 9 best practices of effective teachers; those practices were used as a framework for observation. Through observations and interviews the researcher investigated the teaching strategies used by 3 NBC teachers and how those strategies compare to the 9 best practices identified by Marzano et

al. (2001). Further, the researcher sought to understand how the National Board Certification process impacted those strategy choices. Findings for this study support the following 3 conclusions. First, this research study revealed that the participating Nationally Board Certified teachers use research-based best practices regularly in their classrooms. Second, the NBC process makes a positive impact on instructional practices in the classroom according to the 3 teachers in this study. Last, the NBC process made a difference in the reflective practices of the 3 participants in this inquiry.

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DEDICATION

I dedicated this study to my father Ken Wilder who has always been my strongest supporter and fan. Thank you for standing by me through all life's trials and giving me the encouragement to keep going. I love you, Daddy.

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I would like to thank my wonderful husband Craig for his continued love, support, and encouragement throughout this process. I also want to thank my beautiful children Jessi, Tereva, Jonah, and Jackie for sticking by me when things got tough.

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CHAPTER 1

INTRODUCTION

Background

The No Child Left Behind Act of 2001 [NCLB], 20 U.S.C. 6301; PL107-110; 115 STAT. 1425 (2002) has caused much concern over the state of the educational system. The focus is on student achievement and meeting the requirement for accountability. Although it has been stated that effective teachers are the key ingredients to student success, little research has been done on the requirement for highly qualified teachers (Berry & King, 2005; Center for Teaching Quality, 2008; Darling-Hammond & Youngs, 2002; Ding & Sherman, 2006; Marzano, 2009; Odden, Borman, & Fermanich, 2004; Rothstein, 2010). NCLB (2002) states that a teacher can be considered highly qualified if (a) he or she holds a bachelor's degree, (b) has full state teacher certification or has passed the state licensure exam and holds a license to teach, and (c) demonstrates competence in each academic subject in which he or she teaches. NCLB (2002) also defines how teachers may demonstrate competence. At the elementary level, teachers must pass a rigorous test of subject matter and teaching skills or meet a High, Objective, Uniform State Standard of Evaluation (HOUSSE) set by the state. In Tennessee National Board Certification meets the criteria of the professional matrix section of HOUSSE for teachers to demonstrate highly qualified status (Seivers, 2005).

During the past century educational reform movements focused on the need for highly qualified teachers based on research surrounding the effect on student achievement in relation to the quality of the teacher (Busatto, 2004). The National Board for Professional Teaching Standards ([NBPTS], 2000) was created in 1987 in response to the increasing focus placed on

having quality teachers (Berg, 2003; Humphrey, Koppich, & Hough, 2005; NBPTS, 2011). Their mission statement clearly shows the organization's purpose.

The mission of NBPTS is to advance student learning and achievement by establishing the definitive standards and systems for certifying accomplished educators, providing programs and advocating policies that support excellence in teaching and leading, and engaging National Board certified teachers and leaders in that process. (NBPTS, 2012a, para. 2)

Based on their research, the NBPTS formed core propositions for what accomplished teachers should know and be able to do and developed standards that would constitute the highest level of teaching in different disciplines (NBPTS, 2009). Those teachers seeking certification are assessed based on these standards.

Background of Education Reform

A series of reports in the 1980s led to three waves of school reform. In 1983 President Reagan commissioned a report entitled *A Nation at Risk* (United States, 1983) that became the catalyst for the first wave of reform (Webb, 2006). The document contained criticisms of schools for having low standards, lowered expectations, and decreased time spent on academic subjects. Legislators painted a grim picture of an educational system in crisis and sought reform by proposing a top down management style (Webb, 2006).

The mid-1980s saw a second wave of reform modeled after a bottom-up design. This design was based on recommendations from researchers like Boyer (1995) who suggested that educational excellence can be identified in terms of instruction because it is the teacher who encounters the students on a daily basis. Additional reports published by the Holmes Group and the Carnegie Task Force on Teaching as a Profession embraced the idea of teacher empowerment as emphasized by Boyer (Webb, 2006). Teachers and schools were empowered to a higher degree with the implementation of business management styles like site based management. In

response to a push for nationalized standards for teachers, The Carnegie Task Force on Teaching as a Profession recommended the establishment of the National Board for Professional Teaching Standards to serve as a way for teachers to demonstrate excellence in teaching (NBPTS, 2012a).

School systems faced an increasing teacher shortage during the second wave of reform (Webb, 2006). Consequently, states began to issue alternative licenses. Charter schools and vouchers became more readily available to parents and an increased number of students were being homeschooled by their parents. The third reform wave placed more focus on children and student achievement. In 1994 President Clinton issued a challenge to our educational system with his Goals 2000 legislation that included eight goals (Rink & Williams, 2003). Legislators projected that by the year 2000,

- All students would be ready to learn when they entered kindergarten;
- All students would graduate high school;
- All schools would be safe, disciplined, and drug and alcohol free;
- All American adults would be literate; and
- The United States would be at the top in science and math.

In addition, Goals 2000 included a provision for merit pay for teachers. One impact of Goals 2000 was that teachers and students became more focused on learning than ever before (Goals 2000, 1996). Despite the raised standards enacted by lawmakers, little or no improvement was seen (Webb, 2006).

In 2002 perhaps the most sweeping educational reform movement was seen when President George W. Bush reauthorized the Elementary and Secondary Education Act of 1965 by signing NCLB (2002) into law. NCLB (2002) provided for a greater presence of the federal government in educational practices. The law sought reform in four fundamental areas: more

rigorous standards, more assessments, more accountability, and more highly qualified teachers. This legislation set the stage for increased standards in educational reform (Webb, 2006). In response to NCLB (2002) educators throughout the nation searched for ways to become more researched based and to use additional best practices in their teaching. Teachers attempted to complete requirements for and to show evidence of highly qualified status. Students experienced an increased focus on testing and meeting standards. This environment was still in place 10 years later.

National Board of Professional Teaching Standards

The National Board for Professional Teaching Standards (NBPTS) was created to provide a way to recognize high quality teachers. Members of the NBPTS executive board said that to improve the quality of teaching there must be a focus on professionalism in the educational field (NBPTS, 2012b). The NBPTS suggested that this focus would begin with the establishment of rigorous standards (Goldhaber & Anthony, 2004; NBPTS, 2005). The NBPTS is an organization governed by teachers that emphasizes sound instructional practices and improved teaching. The voluntary process consists of performance-based assessments and a series of written exercises. The standards for National Board Certification are based on solid research that recognizes solid education practices resulting in improvement in student achievement (NBPTS, 2012b).

There are five core propositions that set the foundation for the standards developed by the NBPTS (2002). These include: (1) teachers are committed to students and their learning, (2) teachers know the subjects they teach and how to teach those subjects to children, (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 (NBPTS, 2002).

There are over 97,000 Nationally Board Certified (NBC) teachers nationwide. Out of that number 535 NBC teachers currently teach in Tennessee, and 49 of those teachers were newly certified in 2011 (NBPTS, 2012b). Within the next 20 years, it is estimated that the number of NBC teachers will increase to over 300,000 and will comprise approximately 10% of the nation's teachers (Berg, 2003). It is imperative to understand how National Board Certification influences teacher pedagogy and consequently student learning as an increasing number of students are now taught by NBC teachers. Information concerning the impact of National Board Certification is scarce at the time of this writing, although research is surfacing (Berliner, 1986). More research is needed in order to comprehend the impact of NBC teachers on student learning (NBPTS, 2005).

Best Practices

According to NCLB (2002) teachers should employ research-based best practices in the classroom to deliver instruction. However, it is difficult to regulate what determines that a best practice is in fact research-based. Although different stakeholders in education hold varying opinions of what teachers should and should not do, "the term 'research-based' seems to accompany each argument" (Irvin, 2004, p. 41). The NBPTS suggested a way to describe accomplished teaching and presented a way to recognize remarkable teachers (NBPTS, 2011). The NBPTS does not, however, distinguish specific instructional strategies that these teachers should use (Berg, 2003). Extensive research has been done on instructional strategies and classroom practices that create a more effective classroom (Berends, 2004; Marzano, Pickering & Pollock, 2001; Protheroe, 2004; Walberg & Paik, 2004).

Researchers at Midcontinent Research for Education and Learning (McREL) used a research technique called meta-analysis to analyze research studies on instructional strategies that could be implemented by K-12 teachers (Marzano et al., 2001). The primary goal of their analysis was to identify which instructional strategies had a high probability of improving student achievement. Nine categories of strategies were identified that had a strong effect on student achievement. The categories include:

1. identifying similarities and differences;
2. summarizing and note-taking;
3. reinforcing effort and providing recognition;
4. homework and practice;
5. nonlinguistic representations;
6. cooperative learning;
7. setting objectives and providing feedback;
8. generating and testing hypothesis; and
9. questions, cues, and advance organizers.

Statement of Purpose

Founded in 1987, the NBPTS was created by teachers, for teachers (Berg, 2003; Berliner, 1986; National Education Association [NEA], 2012; NBPTS, 2011; Stone, 2002). NBPTS began with the mission of advancing the quality of teaching and learning by emphasizing what accomplished teachers should know and be able to do (Berg, 2003; Humphrey et al., 2005; McColskey et al., 2005; NBPTS, 2011; NEA, 2012). According to the NBPTS website, more than 6,200 teachers achieved National Board Certification in 2011 bringing the total number of the nation's top teachers to more than 97,000. Some researchers have investigated the

relationship between National Board Certification and teachers' practice; however, results from such studies have been questioned (Holland, 2004). In a study by Pool, Ellett, Schiavone, and Carey-Lewis (2001) variation was found in the quality of Nationally Board Certified teachers with a range from exemplary to ineffective. The majority of studies implemented suggest that having a Nationally Board Certified teacher is an indicator for higher student achievement and improved teaching practices (Fisher & Dickenson, 2005; Goldhaber & Anthony, 2004; Koppich, Humphrey, & Hough, 2007; National Research Council [NRC], 2009; Smith, Gordon, Colby, & Wang, 2005). However, other studies would suggest there is no link between National Board Certification and student achievement (McColskey et al., 2005; NBPTS, 2005; Sanders, Aston, & Wright, 2005; Stone, 2002). Additional research is needed to determine if National Board Certification is an accurate measure of teacher quality. The purpose of this study was to explore the everyday instructional practices of Nationally Board Certified (NBC) teachers who teach grades four and five in east Tennessee. This study is a multi-site, qualitative study that included classroom observations, semi-structured interviews, and checklists to conduct descriptive and evaluative case studies involving three Nationally Board Certified teachers who teach in counties located in east Tennessee.

Research Questions

To investigate the instructional practices of Nationally Board Certified teachers and the potential impact on student learning, the following questions were considered:

1. What instructional strategies do Nationally Board Certified teachers most often implement and which of those strategies are categorized as best practice?
2. How does the National Board Certification process impact instructional choices as reported by Nationally Board Certified (NBC) teachers?

Significance of the Study

This study provides information about the instructional practices of Nationally Board Certified teachers. It also illustrates the ways in which achieving National Board Certification prompts student learning in the classroom. Three case studies present a detailed description of the inner workings and the learning environment of a Nationally Board Certified teacher's classroom. The findings provide information for teachers, administrators, and other educational stakeholders about the best practices that National Board Certification brings to the classroom. Results will add to the body of knowledge about NBC teachers' practices.

Operational Definitions

For the purpose of this study, the following operational definitions were used:

National Board Certification – The process developed by the National Board of Professional Teaching Standards (NBPTS) that recognizes exemplary teachers. To earn certification a teacher must create a portfolio that demonstrates how his or her teaching meets the NBPTS and also complete six assessment center exercises.

Best Practices – The nine categories of instructional strategies that positively affect student achievement as identified by the research conducted by Marzano et al. (2001). These include: (1) identifying similarities and differences; (2) summarizing and note-taking; (3) reinforcing effort and providing recognition; (4) homework and practice; (5) nonlinguistic representations; (6) cooperative learning; (7) setting objectives and providing feedback; (8) generating and testing hypothesis; and (9) questions, cues, and advance organizers.

Limitations

This study was limited to the observation of three classrooms. These three classrooms included only fourth and fifth grade students in east Tennessee. I selected grades four and five because of their related content standards, the similar developmental stage of students, and the Middle Childhood Generalist certification area for National Board Certification. Because of the small number of participants, one teacher could have a significant influence on the results.

Other limitations include the natural interaction between the observer and participants. This issue should be addressed to allow for “a level of mature judgment” (Lincoln & Guba, 1985, p. 103). In addition, as a Nationally Board Certified teacher I may have a bias that could limit the study. To compensate for this possibility, participants were chosen outside my area of certification.

Organization of the Study

Chapter 1 gives an introduction to the study. Chapter 2 provides a review of the current literature surrounding National Board Certification and best practices. Chapter 3 includes the methods used in the research. Chapter 4 reports the results and analysis of the data. And, Chapter 5 has a summary of the findings with conclusions, implications for educators, and recommendations for future research.

CHAPTER 2

LITERATURE REVIEW

Introduction

The purpose of this multi-site, qualitative study was to examine the instructional practices of three Nationally Board Certified teachers who teach grades four and five in east Tennessee. To provide a foundation for this study it is important to consider several topics including the political history related to educational reform, the research conducted on teacher effectiveness and accountability, the history behind the development and implementation of the National Board of Professional Teaching Standards, and characteristics researchers have attributed to best practices in instruction.

History of Educational Reform

The future of the United States of America is built on a strong educational system. There are political leaders in the US, however, who deem our public education system as not meeting the needs of the student in today's changing society. Educational reform has historically threaded the educational process (Webb, 2006).

The 1980s were reminiscent of the late 1950s that brought about a wave of reactionary responses to the launching of the Sputnik satellite and a technological competition with the Soviet Union. In a study conducted by the US Secretary of Health, Education, and Welfare it was revealed that Soviet students received a greater number of instructional hours in 10 years than US students received over a 12-year span (Webb, 2006). Post-Sputnik public concerns indicted the education system as a failure in keeping up with the space race. As a response to rising public pressure from business and industry governmental leaders weighed heavily on school systems to

upgrade science education programs to ensure that graduating students would be equipped to compete in an increasingly high technological society.

The inauguration of President Ronald W. Reagan introduced a new era of the Cold War. Educational reform served as a central component of the Reagan candidacy platform that brought promises to abolish the federally funded Department of Education in favor of school choice. In his remarks on the final report of the National Commission on Excellence in Education, President Reagan advocated for increased parental choice and local and state control as a means to resolve the impending economic crisis. He asserted,

I believe that parents, not government, have the primary responsibility for the education of their children. Parental authority is not a right conveyed by the state; rather, parents delegate to their elected school board representatives and State legislators the responsibility for their children's schooling....

So, we'll continue to work in the months ahead for passage of tuition tax credits, vouchers, educational savings accounts, voluntary school prayer, and abolishing the Department of Education. Our agenda is to restore quality to education by increasing competition and by strengthening parental choice and local control. I'd like to ask all of you, as well as every citizen who considers this report's recommendations; to work together to restore excellence in America's schools (Reagan, 1983, p. 1).

The Cold War era under Reagan's presidency was reminiscent of Sputnik in the 1950s that centralized education as a means of defense. Not all educators subscribed to the doomsday naysayers leading the political, business, and industrial arenas (Smith, 2005). The United States was engaged in a Cold War with the Soviet Union and in economic competition with the Japanese, which both impacted the US domestic economy (Webb, 2006). Education was targeted as the vehicle to advance the United States as an economic leader in the global market. Conservative political, business, and industry leaders spearheaded the school reform movement that created stringent testing standards for educators. In 1981 President Reagan appointed The National Commission on Excellence as a means of addressing the economy. This commission published *A Nation at Risk* (United States, 1983) and changed the face of education.

Although the authors of *A Nation at Risk* highlighted the perceived failures in America's schools, others doubted the accuracy of the report (Ansary, 2007). In 1990 the Secretary of Energy, James Watkins, commissioned the Sandia Laboratories in New Mexico to document the decline in education with data, something *A Nation at Risk* lacked. The final report, *Perspectives on Education in America*, stated that, "On nearly every measure, we found steady or slightly improving trends" (Ansary, 2007, p. 1). The results showed that although the average academic gain was moving in the positive direction, the proportion of top students was shrinking as educational opportunities became more available to others. Thus, the findings signified that progress had been made in extending educational opportunities to a larger range in the population. The *Sandia Report* (Sandia National Laboratories, 1993), as it was later called, closed with, "There are many problems in American schools, but there is no system-wide crisis" (Bracey, 2007, p. 1). The report was not published until 1993 and did not receive the same publicity as *A Nation at Risk* (Ansary, 2007; Bracey, 2007; Higgins, 2009). A comparison of the findings of *A Nation at Risk* (United States, 1983) and *The Perspectives on Education in America* (Sandia National Laboratories, 1993) is shown in Appendix A.

A Nation at Risk

The US Department of Education is a cabinet level department that was created by the Department of Education and Organization Act and signed into law by President Jimmy Carter on October 17, 1979, and began operations the following year. The premise behind the Department of Education and Organization Act was to realize the following:

- Promote improvements in the quality and usefulness of education through Federally supported research, evaluation, and sharing of information;
- Improve the coordination of Federal education programs;

- Improve the management of Federal education activities; and Strengthen the Federal commitment to assuring access to equal educational opportunity for every individual;
- Supplement and compliment the efforts of states, the local school systems and other instrumentalities of the states, the private sector, public and private nonprofit educational research institutions, community-based organizations, parents, and students to improve the quality of education;
- Encourage the increased involvement of the public, parents, and students in Federal education programs;
- Increase the accountability of Federal education programs to the President, the Congress, and the public. (Glavin, 2012, p. 1)

In keeping with his campaign promises, President Reagan appointed Terrel Bell as the second Secretary of Education with the mandate to preside over the dismantling of the US Department of Education (Borek, 2008). The move to dismantle the Department of Education proved unsuccessful because of a series of legal problems that required legislation. Secretary Bell conversely persuaded the President to authorize him to appoint a 12- to 19-member quorum of leading educators to study the excellence of education over a period of 18 months. The National Commission on Excellence in Education, chaired by David P. Gardner, produced *A Nation at Risk: The Imperative for Educational Reform* (Webb, 2006) that became, “The blueprint for educational reform at both the state and local levels” (p. 360). Gardner’s report generated three waves of reform impacting education in the United States into the 21st Century.

A Nation at Risk can be organized into four problematic categories: content, expectations, time, and teaching (Borek, 2008). The centralized message of the report advocated teacher accountability “through content standards and testing” (Derthick & Dunn, 2009, p. 2). *A Nation at Risk* came with the recommendations of strengthening core content areas, developing rigorous standards with high expectations, the effective use of instructional time, and quality teachers and instruction (Wong & Nicotera, 2004).

The commission report painted a grim picture of an educational system in crisis with American students at risk of falling behind students from around the world and thus placed our national security and future prosperity in peril (Lips, 2008). “If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war,” wrote the commissioners (Lips, 2008, p. 1). The panel targeted teacher accountability as a solution to low performance standards, lowered expectations, and decreased time spent on academics. Federalist policy-makers during the first wave of reform designed a top-down corporate management formula for classroom instruction. The new reforms raised the bar on graduation requirements, imposed standardized testing for students, established teacher evaluations, and mandated teacher certification in public schools (Webb, 2006).

The second wave of reform (1986-1989) was largely a corrective measure of the first wave placing a greater emphasis on increasing school effectiveness at the local level or a bottom-up approach as opposed to the top-down model featured in the earlier reform. Restructuring became the catch phrase for the second reform movement. The bottom-up recommendation advanced by distinguished educators like John Goodlad, Theodore Sizer, and Ernest Boyer called for decentralization, site-based management, teacher empowerment, parental involvement, and school choice (Webb, 2006). The Carnegie Forum on Education and the Economy (1986) published a major proposal that read, “We do not believe the educational system needs repairing; we believe it must be rebuilt to match the drastic change in our economy if we are to prepare our children for productive lives in the 21st Century” (p. 14). This report was written in response to *A Nation at Risk* (United States, 1983) and supported the professionalization and empowerment of

teachers as an answer to the dilemma of quality instruction. The authors concluded that a successful educational system is linked to quality teachers (Hill, 1990).

Out of the movement came the establishment of the National Board for Professional Teaching Standards (NBPTS) that centralized accountability of teachers in grades K-12 within the profession rather than by criteria determined by each state (DeLeón, 2003). The NBPTS implements assessment of student learning toward the goal of informing and improving classroom instruction (Phillips, 2009). Outside of student assessment, the NBPTS encourages teachers to first create a positive learning environment and then, approximately 2 weeks after the first day of class, establish clear rules and procedures. This method frees the teacher to instruct, monitor, and provide feedback during class time for the remainder of the school term. Additionally, teachers are encouraged to invest themselves into student learning through collaboration with colleagues, other professionals, students' families, and the community (Phillips, 2009). The NBPTS established certification in more than 25 disciplines and served as a means for educators to demonstrate excellence in teaching. The five core propositions of the NBPTS are:

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 (NBPTS, 2002, p. 3).

In response to sweeping reform school systems encountered a growing shortage of classroom teachers. To alleviate the problem states began to issue alternative licenses – a practice that continued into the 21st Century. According to a 2006 report by the National Center for Education Information there are an estimated 200,000 persons who have been licensed through the alternative teacher licensing program (Aron, 2006). The report further states that the

reasoning behind this move was to meet teacher supply and demand marked by a “market driven phenomena” in the educational system (p. 2). The National Center for Education Information (Colorado Department of Education [CDE], 2010) revealed that a result of alternative teacher licensing was that many teachers were entering the classroom without having the opportunity to practice teaching. One of the recommendations proposed in the 2006 National Center for Education Information report challenges the CDE (2010) to ensure that participants in the alternative licensure program receive high-quality mentoring so they are equipped to meet performance-based standards upon completion of their respective programs.

Charter schools and vouchers were made available to parents during the second wave of reform. School vouchers provided parents with an increased number of choices outside of the public school setting. Many parents chose the home school route for their children with the number of students increasing from 13,000 in grades K-12 in the early 1970s to an estimated 2.4 million students in 2008 (Ray & Eagleson, 2008). The report further revealed that homeschooled students in grades K-12 scored on average at the 65th to the 80th percentile on standardized academic achievement tests in the United States and Canada, compared to the public school 50th percentile average.

Laws governing charter schools vary from state-to-state and they are freed from the rules, regulations, and statutes that uniformly apply to public schools. According to a report from the NEA (2012), the number of charter schools grew from two in 1991 to 3,000 by 2004. The report further stated that more than $\frac{2}{3}$ of the charter schools operating in 2012 have been in business for less than 3 years and more than 400 have gone out of business (NEA, 2012). Further, the National Assessment Governing Board (NAGB) (2008) assessed charter school effectiveness in

2004 and found that charter school students on average scored lower than students in traditional public schools.

President George H.W. Bush challenged a group of CEOs representing the Business Roundtable (BRT) to commit personal time and company resources to education during a series of meetings in 1989, which resulted in a program known as *America 2000* (Webb, 2006). The four goals of the plan were:

1. to insure that all students enter school healthy and ready to learn;
2. that at least 90% of students graduate from high school;
3. that all students are competent in the academic disciplines; and
4. that the US ranks 1st in achievement in mathematics and science (Webb, 2006).

This move sparked the third wave of reforms that are anchored in the final *A Nation at Risk* (United States, 1983) report. In contrast to the first and second waves that emphasized the state and local levels, the third wave reform movement centralized children as the primary focus of concern (Webb, 2006). One of the major objectives of the reform was to prepare children for citizenship through measurable performance. The teacher accountability campaign continued into the Clinton era with the passage of *Goals 2000* that applied governmental pressure onto educators by holding them directly responsible for the outcome of student performance and achievement (Webb, 2006).

Goals 2000

The 1992 presidential election set the stage for another transition in public education in the United States. Arkansas Governor and Presidential candidate Bill Clinton vowed to institute a comprehensive plan that would ensure a world-class education in America. One of the objectives addressed accountability standards for every school, teacher, and student (Clinton, 1992).

Approximately midway through his first term, President Clinton kept his promise by upgrading Bush's *America 2000* into a newly formed *The Goals 2000: Educate America Act*, which was

signed into law on March 24, 1994. The driving premise of *Goals 2000* was achievement outcomes that advance objectives pushing each student to reach his or her fullest potential. The *Goals 2000 Act* included merit pay for teachers. The following are the eight stated goals defined by Title I of the Act:

By the year 2000 –

- All children in America will start school ready to learn.
- The high school graduation rate will increase to at least 90 percent.
- All students will leave grades 4, 8, and 12 having demonstrated competency over challenging subject matter including English, mathematics, science, foreign languages, civics and government, economics, the arts, history, and geography, and every school in America will ensure that all students learn to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment in our nation's modern economy.
- U.S. students will be first in the world in mathematics and science achievement.
- Every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship.
- Every school in the United States will be free of drugs, violence, and the unauthorized presence of firearms and alcohol, and will offer a disciplined environment conducive to learning.
- The nation's teaching force will have access to programs for the continued improvement of their professional skills and the opportunity to acquire the knowledge and skills needed to instruct and prepare all American students for the next century.
- Every school will promote partnerships that will increase parental involvement and participation in promoting the social, emotional, and academic growth of children. (US Department of Education, 1996, p. 1)

The reauthorization of the ESEA, the *Improving America's Schools Act* (ISEA), was a major part of *Goals 2000*. The purpose was to comprehensively reform education at the state and local levels (Webb, 2006). School districts were called upon to mediate the plan from the state to local schools that would present challenging content and high-stakes performance standards, implement assessments to measure student progress, and adopt measures of accountability of the standards. Low socioeconomic students, ethnic minority students, and limited English proficient students did not adequately meet the standards established in *Goals 2000* (Webb, 2006). The

National Education Goals Panel was discontinued as the funding was cut for this bill in 2001 making way for the next series of reform through the *No Child Left Behind Act* (Paige, 2001).

No Child Left Behind

The turn of the 21st Century marked the beginning of another education reform bill. During the 2000 presidential election education surfaced at the forefront of the Bush campaign (Derthick & Dunn, 2009). As with former presidential candidates, George W. Bush labeled himself as “The Education President.” During his first year in office President Bush also kept his campaign promises and signed into law the *No Child Left Behind Act* on January 8, 2002. NCLB (2002) was a reauthorization of the 1965 *Elementary and Secondary Education Act* (ESEA) legislated under the Johnson Administration. As with earlier reforms, the law established standards-based education that could be measured through achievement outcomes. With the final language of President George Bush’s NCLB (2002) came the withdrawal of all authorization for *Goals 2000*. NCLB (2002) provided a greater presence of the federal government into educational practices and created more rigorous standards, more assessments, higher accountability, and an increased number of highly-qualified teachers. NCLB (2002) encouraged parental involvement and school choice that would inevitably increase teacher accountability in the public schools. In response to this law many schools searched for ways to become more researched-based and use best practices in their teaching.

A Blueprint for Reform

America will not succeed in the 21st century unless we do a far better job of educating our sons and daughters... And the race starts today. I am issuing a challenge to our nation’s governors and school boards, principals and teachers, businesses and non-profits, parents and students: if you set and enforce rigorous and challenging standards and assessments; if you put outstanding teachers at the front of the classroom; if you turn around failing schools – your state can win a Race to the Top grant that will not only help

students outcompete workers around the world, but let them fulfill their God-given potential. (Obama, 2009, p. 1)

These were President Barack Obama's words during a speech given July 24, 2009. In a joint effort the Obama Administration and US Secretary of Education Arne Duncan launched a federally-funded reform and innovation stimulus program, known as *The Race to the Top* that put states in competition for the \$4.45 billion dollars allocated to the program (Hamilton, 2009). States that presented the highest number of benchmarks in terms of principal and teacher performance along with student outcome measures received grant funding. The driving factor behind the program was to increase the number of educators working in marginalized student populations through the allocation of resources including the Title I School Improvement Grants and the State Educational Technology Grants designed to reform struggling schools (Hamilton, 2009).

The Blueprint for Reform was released by the US Department of Education (Duncan, 2010) on March 13, 2010, as a means of revising the Elementary and Secondary Education Act (ESEA). The blueprint centered on the goals of the American Recovery and Reinvestment Act of 2009 that included the following four areas:

1. To improve teacher and principal effectiveness,
2. To inform families in order that they become instrumental in the school evaluation process,
3. To raise the bar on college and career ready standards, and
4. To implement effective strategies geared toward maximizing student learning in lower-performing schools (Duncan, 2010, p. 3).

As with earlier reforms surrounding the ESEA *Race to the Top*, a component of *The Blueprint for Reform*, is modeled on business practices that emphasize turnaround strategies in the marketplace (Hargreaves & Shirley, 2009). *The Blueprint for Reform* was not limited to public education but also targeted charter schools. In 2010 the Obama Administration proposed

HR 4330 to expand charter schools in 2011. This was predicted to increase competition among schools for funding (National Coalition on School Diversity, 2010).

Educational reform movements are countless (Darling-Hammond, 1997). Each wave of reform emphasizes its own version of success; however, in every case the quality of the teacher played an integral role. Research on student achievement supports the idea that the greatest factor to influence student achievement is the quality of the teaching and instruction in the classroom (Marzano, 2009; NBPTS, 2008; Zemelman, Daniels, & Hyde, 2005).

Teacher Effectiveness

Each of the reform movements discussed has addressed the idea of teacher effectiveness and accountability. Researchers continue to study these topics. A large body of research exists that explores the characteristics related to teacher quality and how those characteristics relate to teacher effectiveness (Campbell, West, & Peterson, 2005; Cochran-Smith, 2005; Cruickshank, Jenkins, & Metcalf, 2003; Darling-Hammond & Youngs, 2002; Ding & Sherman, 2006; Finn, 2003; Goe, Bell, & Little, 2008; Goldhaber & Anthony, 2004; Harris & Sass, 2008; Marzano, 2009; Odden et al., 2004; Palardy & Rumbarger, 2008; Stronge, Ward, Tucker, & Hindman, 2007). It has been suggested that the quality of the teacher is directly linked to student achievement (Center for Teaching Quality, 2008; Darling-Hammond & Youngs, 2002; Ding & Sherman, 2006; Marzano, 2009; Odden et al., 2004; Rothstein, 2010). The consideration that all students deserve a teacher of high quality who demonstrates effectiveness in helping students reach higher standards is a critical issue in education (Cochran-Smith, 2005; Finn, 2003; Goldhaber & Anthony, 2004). However, the challenge that parallels this train of thought is a lack of consensus on what defines a quality teacher. This section focuses on the literature that addresses teacher quality and effectiveness.

When examining teacher quality, researchers generally focus on two areas: teacher characteristics and instructional techniques (Palardy & Rumberger, 2008; Stronge et al., 2007). Campbell et al. (2005) state, “Teacher effectiveness is the impact that classroom factors, such as teaching methods, teacher expectations, classroom organization, and use of classroom resources, have on students’ performance,” (p. 3). In a synthesis of research, Goe et al. (2008) give the following definitions:

- Effective teachers have high expectations for all students and help students learn, as measured by value-added or other test-based growth measures, or by alternative measures.
- Effective teachers contribute to positive academic, attitudinal, and social outcomes for students such as regular attendance, on-time promotion to the next grade, on-time graduation, self-efficacy, and cooperative behavior.
- Effective teachers use diverse resources to plan and structure engaging learning opportunities; monitor student progress formatively, adapting instruction as needed; and evaluate learning using multiple sources of evidence.
- Effective teachers contribute to the development of classrooms and schools that value diversity and civic-mindedness.
- Effective teachers collaborate with other teachers, administrators, parents, and education professionals to ensure student success, particularly the success of students with special needs and those at high risk for failure. (p. 8)

Research has resulted in mixed conclusions concerning the impact of teacher characteristics on student achievement (Campbell et al., 2005; Cochran-Smith, 2005; Darling-Hammond & Youngs, 2002; Ding & Sherman, 2006; Finn, 2003; Goe et al., 2008; Harris & Sass, 2008; Marzano, 2009; Palardy & Rumberger, 2008; Stronge et al., 2007). Cruickshank et al. (2003) suggest that effective teachers are “caring, supportive, concerned about the welfare of students, knowledgeable about their subject matter, able to get along with parents...and genuinely excited about the work that they do” (p. 329). Continuing with the theme of caring, Norlander-Case, Reagan, and Case (1999) postulate that, “The teacher...becomes the tailor—fashioning environments that are caring and that teach students to care for their learning and for one another” (p. 62). Other studies have focused on more measurable characteristics such as

certification, academic degrees, and years of experience. Of these characteristics, teaching experience has been consistently associated with positive student achievement. The findings from previous studies have shown that teachers are more effective during the first 5 years. After this point, the benefit of experience becomes less evident (Harris & Sass, 2008; Nye, Konstantopoulos, & Hedges, 2004) Newer studies have focused on other characteristics such as cognitive ability, content knowledge, and personality traits (Kane & Staiger, 2008; Kane, Taylor, Tyler, & Wooten, 2011).

This growing body of research shows significant differences in how teacher effectiveness relates to student achievement (Kane & Staiger, 2008; Nye et al., 2004; Rivkin, Hanushek, & Kain, 2005). In addition, the research findings suggest that very few of these differences can be attributed to the measurable characteristics of teacher quality like certification, degree, or experience (Aronson, Barrow, & Sander, 2007). In a study conducted in New York Kane, Rockoff, and Staiger (2008) found standard deviations in teacher effects to be 0.21 and 0.20 in math and reading. Characteristics such as experience, college choice, and a traditional or nontraditional path into teaching were only weakly related to the teacher effects. The researchers concluded that the majority of differences in teaching effectiveness are within groups as opposed to between them. Recent teacher evaluation reforms focus more on the teacher's estimated value-added to student achievement (Corcoran, Jennings, & Beveridge, 2011).

A good measure of quality is needed to make decisions regarding the hiring, retention, and compensation of teachers (Rothstein, 2010). Researchers are concentrating more and more on the impact to student achievement as measured by standardized tests as the chief indicator to teacher quality (Clotfelter, Ladd, & Vigdor, 2007; Hanushek & Rivkin, 2006; Rothstein, 2010). Studies conducted by Rivkin et al. (2005) have shown a marked degree of variation between

teachers in their effect on student achievement. Using data that were collected from Texas, these researchers found that a 1 standard deviation increase in teacher value-added was linked to a 0.10 standard deviation increase in reading test scores and a 0.11 standard deviation increase in math. These findings are similar to other studies conducted in other states (Aaronson et al., 2007; Kane & Staiger, 2008; Koedel & Betts, 2008; Papay, 2011; Rothstein, 2010). Nye et al. (2004) conducted a unique study in the early grades and found an even larger effect of teacher quality on student achievement exists.

Some researchers agree that within a broad context of teacher quality, highly qualified teachers have a major impact on student achievement (Hanushek & Rivkin, 2006; Rivkin et al., 2005; Rockoff, 2004). Hanushek and Rivken (2006) provided further insight into the “pure outcome-based measures of teacher effectiveness. The general idea is to investigate total teacher effects by looking at differences in growth rates of student achievement across teachers” (p. 13). In addition, Rivkin et al. (2005) suggest that having a good teacher 5 years in a row (at the 85th percentile) could overcome the average 7th grade math achievement gap between lower income students and those from a higher economic status. Disagreement occurs in the literature when the particular characteristics of teacher quality are assessed such as (a) advanced degrees, (b) National Board Certification, (c) years of experience, and (d) highly qualified status as defined by NCLB (2002). A review of National Assessment of Educational Progress data from 1992 and 1994 conducted by Darling-Hammond (1999) suggests a modest correlation between advanced degree attainment and higher student achievement. However, a later study completed by Clotfelter, Ladd, and Vigdor (2006) postulated that obtaining an advanced degree has no impact on student achievement.

An analysis of National Board Certification produced parallel findings. Some researchers have provided compelling data to confirm the benefit of National Board Certification on student achievement (Bond, Smith, Baker, & Hattie, 2000; Cavalluzzo, 2004; Smith et al., 2005; Stone, 2002). Vandevoort, Amrein-Beardsley, and Berliner (2004) conducted a 4-year study of national certification and Stanford Achievement test scores of students. The results showed that achievement scores were significantly higher during 3 of the 4 years. Although not statistically significant, another year of the study found that the test scores for students who were taught by a Nationally Board Certified (NBC) teacher were higher than those students who were not taught by a NBC teacher. In contrast, other studies did not produce evidence that National Board Certification had a significant benefit for student achievement (Clotfelter et al., 2006; Goldhaber & Anthony, 2004).

As evidenced in the literature, a consensus on the definition of an effective or quality teacher does not exist. There is widespread agreement that of all the school factors that impact students, the teacher's influence in the classroom is most closely associated with student achievement (Center for Teaching Quality, 2008; Darling-Hammond & Youngs, 2002; Ding & Sherman, 2006; Marzano, 2009; Nye et al., 2004; Rivkin et al., 2005; Rothstein, 2010). The National Board for Professional Teaching Standards was an outgrowth of the idea that teachers are the most important factor in achievement (DeLeón, 2003; Vandevoort et al., 2004). Numerous studies validated that high quality teachers positively impact student achievement (Aaronson et al., 2007; Kane & Staiger, 2008; Koedel & Betts, 2008; Nye et al., 2004; Papay, 2011; Rivkin et al., 2005; Rothstein, 2010). Even after all the research, measuring the impact of National Board Certification on student achievement has remained elusive (Harris & Sass, 2008; Humphrey et al., 2005).

Advanced Degrees and Teacher Effectiveness

The vast majority of research concerning the impact of advance degrees on teacher effectiveness provides evidence that suggests teachers with a master's degree are not more effective than teachers with a bachelor's degree (Chingos & Peterson, 2011; Ehrenberg & Brewer, 1994; Goldhaber, 2002; Goldhaber & Brewer, 1996; Rowen, Cornenti, & Miller, 2002; Walsh & Tracy, 2004). One of the most cited studies on graduate education and teacher effectiveness dates back to 1997. Goldhaber and Brewer (1996) explored the relationship between student achievement and a series of variables in their schools, classes, and teachers. The theory was that if one could measure teacher effectiveness by the achievements of their students, then the things that make teachers more effective should also lead to higher achieving pupils. The results of this study suggested that there was no statistically significant relationship between advanced degrees and student test scores. Results of the study did show; however, that teachers with training in subject areas like math were more effective in those areas with or without an advanced degree. The researchers said, "Teachers' educational levels appear to make a difference when the education is related to the subject taught, but advanced degrees do not appear to serve as a good measure of quality in general" (Goldhaber, 2002, p. 6).

Another study by Chingos and Peterson (2011) supports the 1996 findings of Goldhaber and Brewer. Chingos and Peterson (2011) looked at the characteristics of effective fourth through eighth grade teachers in Florida during the years of 2002-2010. Results of the study implied that teachers with a master's degree were no more effective than teachers who lacked such a degree. Goldhaber (2002) also suggested that the teacher characteristics that can be measured, including education level and certification status, only account for 3% of the differences in student achievement associated with teacher attributes.

There appears to be only a little evidence that teacher degree and experience level consistently and positively influences student learning (Goldhaber, 2002). A literature review conducted by Eric Hanushek (as cited by Goldhaber, 2002) resulted in evidence that only a small number of research studies find teacher degree level and experience to be statistically significant in improving student achievement. In addition, a meta-analysis by Greenwald, Hedges, and Laine (1996) showed that resource variables such as teacher education and teacher experience show a very strong relationship to student achievement. Studies that find statistically significant relationships between teacher training and student achievement find that the effects of these characteristics are small and specific to certain contexts (Goldhaber, 2002).

National Board for Professional Teaching Standards

The report, *A Nation Prepared: Teachers for the 21st Century*, released by the Carnegie Forum on Education and the Economy in 1986, called for the establishment of the National Board for Professional Teaching Standards (NBPTS) (Childers-Burpo, 2001). The charge to the NBPTS was to establish high standards for what teachers need to know and be able to do and to certify those teachers who meet those standards (Carnegie Forum on Education and the Economy, 1986). The NBPTS is an independent, nonprofit, nonpartisan, and nongovernmental organization governed by a board of directors. The certification process differs from the mandatory systems of state licensing in that it is a voluntary process developed by teachers and for teachers to recognize educators for the quality of their practice. NBPTS certification recognizes teachers who have met challenging professional standards as demonstrated by performance-based assessments on content knowledge and instructional competencies deemed necessary for effective performance in their certification area (NBPTS, 2009).

According to the NBPTS website, the board's mission is to advance the profession by,

- maintaining high and rigorous standards for what accomplished teachers should know and be able to do,
- providing a national voluntary system certifying teachers who meet these standards, and
- advocating related education reforms to integrate National Board Certification in American education and to capitalize on the expertise of National Board Certified Teachers. (NBPTS, 2002, para. 4)

The NBPTS goes above and beyond the minimum requirements for licensing set by the states and is intended to be a sign of a higher level of professional accomplishment (Humphrey et al., 2005). A teacher who attains National Board Certification has been judged on his or her knowledge of content and pedagogy, use of high-quality instructional practices, assessment practices, personal reflection, and professional activity (McColskey et al., 2005). The benchmarks for evaluation are addressed in the five core propositions of the NBPTS.

Five Core Propositions of the NBPTS

Based on the research on teacher quality and its impact on student achievement (DeLeón, 2003; Goldhaber & Anthony, 2004; Humphrey et al., 2005), the NBPTS developed what became the research-based core propositions for teaching. The five core propositions are:

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.

These five core propositions serve as the common link to all certificate areas and are the foundation of the NBPTS standards for teaching (Humphrey et al., 2005; NBPTS, 2009; Rothstein, 2010).

The first core proposition reflects the idea that teachers who are committed to their students and their learning are more effective in the classroom. The NBPTS purports that teachers should emphasize that all students can learn and an accomplished teacher will make content knowledge available to all students. This proposition is characterized by the use of instructional practices that respect the uniqueness of each student. To accomplish this goal a teacher must communicate effectively and develop positive relationships with his or her students. The NBPTS assessment measures the level to which teachers treat students fairly and account for students' individual needs; using practices that differentiate instruction and are culturally sensitive is endorsed by the NBPTS. An effective teacher should respect the cultural differences of students and be concerned with teaching the whole child, including the areas of self-concept, motivation, and social relationships. Nationally Board Certified teachers are also interested in their students' growth in character and civic responsibility (NBPTS, 2009).

Core proposition two states that teachers know the subjects they teach and how to teach those subjects to students. This proposition is founded on the premise that teachers must have a profound understanding of the structure and real-world applications of the content they teach. Teachers should also be cognizant of any skill gaps or preconceptions students may have in order to differentiate the instruction and better meet the needs of each student. The NBPTS measures each teacher's instructional strategies and his or her ability to teach for higher-level thinking and comprehension (NBPTS, 2009).

The third core proposition deals with the process of teaching itself. This proposition emphasizes that teachers are responsible for guiding and monitoring student learning, which includes providing effective instruction for maximized learning. Teachers move fluently through multiple instructional techniques, keeping students motivated, engaged, and focused. In addition, accomplished teachers continually monitor students and adjust teaching to ensure mastery. Instructional strategies may include student collaboration or independent work to keep students actively engaged in the learning. The NBPTS process measures the degree to which teachers use formative and summative assessments to evaluate the progress and motivation of individual students as well as the class as a whole. NBC teachers also establish a method of communication that can clearly explain student performance to parents (NBPTS, 2009). The practice of assessment and feedback has been associated with student achievement (Schacter & Thum, 2004). Studies conducted by Schacter and Thum (2004) examined 12 areas of teaching practices in an attempt to establish the relationship between teacher variation and student achievement gains. The areas of teaching practices included phases of the teaching process itself from planning to implementation to evaluation. The results of this study supported the hypothesis that more learning occurs in classrooms having a higher level of observed practices of quality teaching. These results support the ideas found in NBPTS proposition three.

Proposition four is derived from the principle that teachers should think systematically about their practice and learn from experience. NBC teachers should be an example of a life-long learner by continuing to read, question, and try new things. NBC teachers are aware of existing research on learning theories, instructional practices, and current issues in education. Reflection is the foundation of this proposition. Accomplished teachers seriously scrutinize their practices

on a regular basis to deepen their understanding of how students learn, the effectiveness of their teaching, to develop their skills, and to refine their instruction (NBPTS, 2009).

The fifth proposition regards the professional learning communities to which teachers belong. NBC teachers work in partnership with all educational stakeholders to increase student achievement. Teachers are expected to be school, district, and community leaders who actively work to seek and build partnerships with students, parents, and the community. Additionally, teachers collaborate with colleagues on educational issues including instructional policy, curriculum, and professional development.

NBC teachers must demonstrate a mastery of academic content and knowledge of the students they teach as addressed by the five core propositions (Dilworth, Aguerrebre, & Keller-Allen, 2006). The standards for each certificate area are established around these propositions that have a significant application to classroom practices (Benz, 2000). The NBPTS provides the opportunity for educators to enhance their practice by voluntarily completing a rigorous process.

The National Board Certification Process

The National Board Certification (NBC) process is challenging and meticulous for participants and requires many hours to complete (McColskey et al., 2005). Completing the process requires a 200- to 500-hour commitment from participants (Humphrey et al., 2005; NEA, 2012). According to the NBPTS website there are three steps that one must complete prior to submitting a formal application. First, the candidate must hold at least a bachelors degree from an accredited institution. Second, he or she must have completed 3 full years of teaching or counseling. Finally, the potential candidate must have possessed a valid teaching or counseling licensure for the time that he or she satisfied the 3-year practicum requirement.

Subsequent to applying for National Board Certification, along with submission of eligibility documents, the candidate enters a potential 3-year process to meet standards established by the National Board of Certified Teachers. The cost of \$2,500 per candidate requires an additional \$65 processing fee (NBPTS, 2011). The candidate must submit a portfolio that includes four sections, all of which contain proper documentation. The portfolio must have (1) lesson plans, (2) student work samples, (3) videotapes of teaching, and (4) other artifacts supported by written commentaries (Fisher & Dickenson, 2005; NBPTS, 2011). The first three sections reflect the candidate's achievements inside the classroom; the remaining fourth section documents accomplishments outside the classroom.

In addition to the portfolio, which reflects practices surrounding the classroom environment, each candidate is required to demonstrate knowledge in his or her content area through a series of six timed 30-minute computer-based assessments. A panel of 12 Nationally Board Certified teachers then assesses the candidate to ensure that he or she has met the appropriate criteria reflected in the NBPTS standards. The passing rate for the first attempt at National Board Certification is relatively low with an overall rate of 40% (Berliner, 1986; NBPTS, 2009). Teachers who do not succeed during the first attempt can bank scores on portfolio and assessment exercises for up to 3 years and repeat the sections that received low scores. However, after 3 years of unsuccessful tries the candidate must begin the process over, if the candidate wishes to continue (NBPTS, 2009).

Support for the NBPTS and Student Achievement

The basis for the NBPTS is research that recognizes educational practices resultant in increased student achievement. More than 140 studies and reports have been commissioned by the NBPTS. Countless studies suggest that National Board Certification is a gauge for higher

student achievement (Humphrey et al., 2005). Four large studies each found a relationship between NBC teacher status and student performance on standardized tests (Cavalluzzo, 2004; Goldhaber & Anthony, 2007; Smith et al., 2005; Vandevort et al., 2004). All four studies showed a positive connection between NBC teacher status and student learning.

A study completed by Cavalluzzo (2004) indicated that on end-of-grade math exams, the 9th and 10th grade students of NBC teachers in Miami scored statistically significantly higher than students taught by non-NBC teachers. The researcher used data from the Miami-Dade Public Schools during a 3-year period. Individual student records were used to collect data that was then linked to students of NBC teachers, non-NBC teachers, and teachers who had attempted the National Board Certification process but had been unsuccessful. A multivariate framework was used that accounted for variations in student and teacher characteristics. It was found that,

When compared with students whose teachers had never been involved with NBC, we found that students with otherwise similar teachers made larger gains if their teacher had a NBC and smaller gains if their teacher failed or withdrew from the NBC accreditation process. (Cavalluzzo, 2004, pp. 3-4)

Results of this study strongly support the idea of National Board Certification as a successful indicator of highly qualified teachers. One limitation of this study was that even though the researcher controlled for outside factors relating to student performance, it was possible that unseen discrepancies in student readiness were associated with the assignment of a student to a NBC teacher (Cavalluzzo, 2004).

Vandevort et al. (2004) analyzed data from 35 classrooms of NBC teachers and their non-NBC certified counterparts in 14 Arizona school districts. Four years of data compiled from the Stanford Achievement Tests in reading, math, and language arts in grades 3-6 were analyzed. In almost 75% of the comparisons made, students taught by NBC teachers outperformed students in classrooms of non-NBC certified teachers. One third of these differences were statistically

significant. On average, gains for the students of NBC teachers averaged over one month greater than those students of non-NBC certified teachers (Berliner, 1986; Humphrey et al., 2005; NBPTS, 2011). “Students of NBCTs averaged 2.45 points greater adjusted gains in scaled scores on the SAT-9 per year than did students of non-NBCTs” (Vandevort et al., 2004, p. 34).

The results of this study provide justification for policies that promote the National Board Certification process as a method to improve teacher quality and show that NBC teachers have a more positive effect on student achievement than non-NBC teachers (Vandevort et al., 2004). Cavalluzzo (2004) noted that the analysis in this study did not consider the differences in student attributes that may correlate with NBC teachers. Sanders et al. (2005) also criticized this study for not accounting for the nested structure of the data by using hierarchical models.

Goldhaber and Anthony (2007) studied the relationship between NBC teachers and teacher contribution to student learning in North Carolina. The researchers sought answers to the question of whether the NBPTS assessed the most effective applicants, whether National Board Certification was a predictor of quality, and whether finishing the National Board Certification process served as a channel for increasing teacher effectiveness. Results indicated that the contribution of future NBC teachers to student learning was greater than that of teachers who did not succeed in becoming Nationally Board Certified. The range of the achievement differential suggested that being in a classroom led by a teacher who is or later becomes a Nationally Board Certified teacher can advance student achievement gains by up to 0.10 standard deviations per year for the average student (Goldhaber & Anthony, 2007). Similar to the previous studies discussed, Goldhaber and Anthony (2007) suggested that National Board Certification provides a valid signal of teacher effectiveness.

Several studies found a positive effect of NBC teachers on student achievement (Cavalluzzo, 2004; Goldhaber & Anthony, 2007; Vandevort et al., 2004). However, the majority of these studies have examined students' scores on standardized tests. In contrast, Smith et al. (2005) provided descriptions of teacher practices and student outcomes associated with deeper learning. They examined correlations between student achievement and Nationally Board Certified teacher status. Participants came from 17 states. Thirty-five NBC teachers and 29 teachers who had attempted but did not succeed in the National Board Certification process took part in the study. The overall findings of this mixed-method comparative study found that in every comparison between NBC teachers and non-NBC teachers, the NBC teachers acquired higher mean scores. Furthermore, the results indicated that, "Students of NBCTs were much more likely to achieve deep student learning outcomes" (Smith et al., 2005, p. 143).

Multiple studies offer evidence that the National Board for Professional Teaching Standards (NBPTS) is reaching its goal of identifying accomplished teachers who affect student achievement (Berliner, 1986; Cavalluzzo, 2004; Goldhaber & Anthony, 2007; Humphrey et al., 2005; NBPTS, 2011; Smith et al., 2005; Vandevort et al., 2004). Studies conducted by Clotfelter et al. (2007) and Hakel, Koenig, and Elliott (2008) have shown similar results to the previous studies discussed. Their findings were that National Board Certification differentiates more effective teachers from less effective teachers with regard to student achievement (Hakel et al. 2008).

Concerns Surrounding the NBPTS and Student Achievement

Traditionally, the NBPTS recognized outstanding teachers by focusing on their practices and not on the learning outcomes of their students. This fact brought criticism from some (Cantrell & Hughes, 2008; McColskey et al., 2005; Sanders et al., 2005; Stephens, 2003; Stone;

2002). This section of the literature review explores negative findings related to the NBPTS and student achievement.

In 2002 Stone released a report, *The Value-Added Achievement Gains of NBPTS-Certified Teachers in Tennessee*, which challenged the NBPTS claims. The study was one of the first to evaluate the influence of NBC teachers according to objectively measured student achievement outcomes (Holland, 2004; Stone, 2002). Stone used standardized test scores to scrutinize the relationship between NBC teachers and student achievement. The *Tennessee Value-Added Assessment Model* (TVAAS) was used to explore whether NBC teachers in Tennessee were more effective in improving student achievement gains than non-NBC teachers. TVAAS is a statistical analysis of achievement data that measures academic growth over time for students and groups of students (Webb, 2010). In his study Stone (2002) found that none of the NBC teachers in the sample met the benchmark for exceptional teaching as demonstrated by the TVAAS indicator. Therefore, he concluded that NBC teachers were no different than non-NBC teachers in increasing student achievement. Critics of this study state that there was not a sufficient sample size to interpret findings appropriately (Cavalluzzo, 2004).

A study conducted in South Carolina showed similar results. Stephens (2003) studied the state's *Palmetto Achievement Challenge Test* (PACT) scores of 4th and 5th grade students of NBC teachers and non-NBC teachers. Stephens identified two groups of students with similar PACT scores during the 2000-2001 school term. The following year, one group of students was taught by a Nationally Board Certified (NBC) teacher, and the other group was taught by a non-NBC teacher. The researcher found no statistically significant difference in the student achievement scores at the end of the year. Vandervoort et al. (2004) warned that this study's statistical power

was restricted because the researcher had difficulty in matching teachers. Therefore, the number of students for which there were data was very small.

Some studies indicate that as a group NBC teachers have been found to be no more effective than non-NBC teachers (Cantrell & Hughes, 2008; McColskey et al., 2005; Sanders et al., 2005; Stephens, 2003). Sanders et al. (2005) researched the effects of NBC teachers on the achievement of students in two North Carolina school districts. Their goal was to compare NBC teachers to three groups of non-NBC teachers: those who had never attempted National Board Certification, those who intended to pursue National Board Certification, and teachers who had been unsuccessful in attaining National Board Certification. Results of the study demonstrated that students of NBC teachers did not have significantly greater gains than students in any of the other groups. The researchers concluded that the current certification process does a relatively poor job of distinguishing effective from ineffective teachers (Blazer, 2010). McColskey et al. (2005) confirmed this result in their study of NBC teachers and students reading and math *End of Grade* exams in North Carolina. Again, the researchers found no significant difference between NBC teachers and non-NBC teachers.

Cantrell and Hughes (2008) conducted one of the most definitive studies concerning the effects of National Board Certification on student achievement. This study is the only research addressing National Board Certification that has received the seal of approval for the US Department of Education's *What Works Clearinghouse* (Blazer, 2010). The researchers analyzed data on 2nd through 5th grade students taught by 198 teachers in the Los Angeles Unified School District. The NBC teacher participants in the study were matched with a comparison teacher at the same grade and at the same school who was not Nationally Board Certified. Math and language arts standardized test scores of students assigned to NBC teachers, teachers who had

attempted but not succeeded in earning certification, and those who had never applied for National Board Certification. Results suggested no significant difference between the standardized test scores of students assigned to NBC teachers and those assigned to teachers who have never attempted the process. It is important to note, however, that students assigned to teachers who had attempted and failed to obtain National Board Certification had significantly lower test scores than students who were assigned to teachers who had not attempted the certification (Cantrell & Hughes, 2008).

In summary, the previous studies provide mixed results with respect to the impact of National Board Certification on student achievement. Findings varied depending on subject area, grade levels, and groups of teachers considered. Some evidence presented support for the effects of NBC teachers on student achievement, while other evidence elicits concern surrounding the effect of the certification process on teacher effectiveness. A Nationally Board Certified teacher is recognized for his or her qualifications, content knowledge, and pedagogy as evidenced by the five core propositions. There are limitations to using National Board Certification as the only measure of teacher effectiveness. The National Board Certification process does not assess the ongoing process of teaching but is instead a snapshot of a teacher's expertise as measured by portfolio and computer-based evaluations. National Board Certification does not give a continuous and systematic look at effective instructional practices.

The Impact of National Board Certification on Classroom and Professional Practices

Multiple studies have shown that National Board Certification has a positive effect on teaching practice. In addition, it would seem that NBC teachers have a common belief that they can affect student achievement (NBPTS, 2009). Several important studies are summarized here.

Bond et al. (2000) identified 13 model characteristics of exemplary teachers using a meta-analysis of research. The researchers theorized that an expert teacher would exhibit these characteristics (and more): use of knowledge, problem solving strategies, differentiated instruction, decision making, challenging objectives, and classroom climate. A comparison was made between 31 NBC teachers and 34 non-NBC teachers in North Carolina on the level to which they demonstrated the 13 identified characteristics of expert teachers. Data were collected from lesson plans, classroom observations, scripted interviews, and student work samples. The researchers found that the NBC teachers surpassed non-NBC teachers on 11 of the 13 comparisons. The two areas where NBC teachers did not show a significant difference from non-NBC teachers were teachers' ability to monitor and provide feedback and competence in responding to the diversity in the classrooms.

There are some who criticized the methodology used by Bond et al. (2000). The measures used to determine student performance have been described as indistinct and no controls were used for students' previous achievement levels or demographics. These oversights could have biased the findings in favor of NBC teachers (Cavalluzzo, 2004; Vandevort et al., 2004).

Results of a study conducted by O'Sullivan et al. (2005) suggested that NBC teachers were more effective at assessment in the classroom. The researchers surveyed NBC teachers and non-NBC teachers in North Carolina. An additional sample was selected from the original participants for more intense observation. Classroom assessments received from NBC teachers earned significantly higher ratings than those from non-NBC teachers. The NBC teachers also saw themselves as having a more comprehensive understanding of classroom assessment.

A nationwide survey authorized by the NBPTS proposed that NBC teachers reported a greater sense of teaching efficacy than other teachers. The findings showed that 89% of

participants conveyed that the National Board Certification process had allowed them to create stronger curricula and more effectively evaluate student learning; 99% stated that since obtaining certification they had acquired at least one leadership role. In addition, the majority of respondents said that they were involved in mentoring new teachers and other candidates for National Board Certification (NBPTS, 2009).

An additional study was conducted by McColskey et al. (2005) and presented less positive results. The research design used interviews, surveys, classroom observations, and artifacts to compare NBC teachers and non-NBC teachers. No significant difference was found in terms of the level of questioning, classroom management strategies, or the number of students displaying off-task behavior. The NBC teachers did however show significantly higher levels of cognitive challenge in daily assignments over the non-NBC teachers.

Research-Based Best Practices

According to the NCLB (2002) teachers should employ research-based best practices in the classroom to deliver instruction. However, it is difficult to determine what constitutes research-based instruction. Some focus on content knowledge while others focus on pedagogy. “Quality teaching, it appears, is about more than whether something is taught. It is also about how it is taught” (Fenstermacher & Richardson, 2005, p. 189). Although different stakeholders in education hold varying opinions of what teachers should and should not do, “the term ‘research- based’ seems to accompany each argument” (Irvin, 2004, p. 41). The National Board for Professional Teaching Standards suggests a way in which to describe accomplished teaching and presents a way to recognize remarkable teachers (NBPTS, 2011). The NBPTS does not, however, distinguish specific instructional strategies that these teachers should use (Berg, 2003). Extensive research has been done on instructional strategies and classroom practices that create a

more effective classroom (Hattie, 2009; Marzano et al., 2001; Walberg & Paik, 2004; Zemelman et al., 2005).

The primary goal of Marzano et al.'s (2001) analysis was to identify which instructional strategies have a high probability of improving student achievement. Nine categories of strategies were identified as having a strong effect on student achievement, including: (1) identifying similarities and differences; (2) summarizing and note-taking; (3) reinforcing effort and providing recognition; (4) homework and practice; (5) nonlinguistic representations; (6) cooperative learning; (7) setting objectives and providing feedback; (8) generating and testing hypothesis; and (9) questions, cues, and advance organizers. Following is a brief description of the categories in addition to the average effect size and percentile gain associated with each.

1. Identifying similarities and differences (avg. effect size = 1.61; percentile gain = 45) was the instructional strategy that Marzano et al. (2001) found to be most effective in enhancing student achievement. This category relates to the ability to break a concept into its similar and dissimilar characteristics. By comparing, classifying, creating metaphors, or creating analogies students begin to understand and solve complex problems by analyzing them in a more simple way (Marzano et al., 2001).
2. Summarizing and note-taking (avg. effect size = 1.00; percentile gain = 34) was the second most effective technique (Marzano, 2009). These skills encourage deeper comprehension by asking students to analyze content to recognize the most important ideas and then put it in their own words. The research shows that taking more notes is more advantageous than taking fewer notes. However, verbatim notes are unproductive because it does not allow time for students to

process information. Notes should be in the students' own words (Marzano, 2009).

3. Reinforcing effort and providing recognition (avg. effect size = 0.80; percentile gain = 29) is another best practice identified by Marzano et al. (2001). Teaching students that additional effort is beneficial to learning may actually increase student achievement. Educators must express the connection between effort and achievement. According to research recognizing students for legitimate achievements is also valuable. Intrinsic rewards appear to be more useful than extrinsic rewards (Marzano et al., 2001).
4. Homework and practice (avg. effect size = 0.77; percentile gain = 28) were identified as important strategies. Homework can increase student understanding when the assignments give opportunities to practice and apply new learning to new situations. The amount of homework should fluctuate depending on grade level and parental involvement. Walberg and Paik (2004) found that students learn more when homework is graded and discussed by teachers. Teacher feedback is the key to maximizing the positive impact of homework (Marzano et al., 2001).
5. Nonlinguistic representations (avg. effect size = 0.75; percentile gain = 27) such as graphic organizers, pictures and pictographs, concrete representations, and creating mental images has been found to improve learning (Marzano, 2007). According to Marzano (2007) knowledge is stored in two forms – linguistic and visual – and the more often that students use both forms in the classroom, the more chance of being successful.

6. Cooperative learning (avg. effect size = 0.73; percentile gain = 27) was identified as an important strategy. Although students need time to practice independently, cooperative learning also yields positive results on overall learning (Marzano et al., 2001). Cooperative learning is defined as possessing positive interdependence, face-to-face accountability, individual and group accountability, interpersonal and small group skills, and group processing (Marzano et al., 2001).
7. Setting objectives and providing feedback (avg. effect size = 0.61; percentile gain = 23) guides students on the pathway for learning (Marzano et al., 2001). Goal setting is defined as the process of establishing direction and purpose. Goals should be adjustable to students' own objectives. Supplying regular and specific feedback linked to learning objectives is one of the most effective instructional strategies for improved achievement (Marzano et al., 2001). Hattie and Timperley (2007) found similar results for feedback (avg. effect size = 0.73) and suggested that feedback is among the most powerful influences on student achievement.
8. An additional best practice noted by Marzano (2007) was that of generating and testing hypotheses (avg. effect size = 0.61; percentile gain = 23). His research suggests that a deductive approach to this strategy works best (Marzano, 2007). Students should be required to clearly explain their hypothesis and justification for conclusions. This strategy not only applies to the science teacher, but is also applicable to many other subject areas.
9. The final category recognized by Marzano's (2007) research on best practice is using questions, cues, and advance organizers (avg. effect size = 0.59; percentile gain = 22). These skills help students retrieve what they know about a topic.

Questions help students focus their thinking while cues are straightforward ways to activate schema. Advance organizers allow students to use their prior knowledge to augment new learning. The research shows that these techniques are most effective when used before presenting new material (Marzano, 2007).

Marzano et al. (2001) used meta-analysis to identify nine instructional practices that have a high probability for positively influencing the achievement of all students regardless of grade level or subject area. Results of this work provide clear guidance to educators concerning the instructional strategies that can be used to enhance the skills of students. These best practices are also embedded in the standards document for a Middle Childhood Generalist developed by the National Board for Professional Teaching Standards as evidenced by the chart in Appendix B.

Walberg and Paik (2004) worked to ascertain which instructional practices noted in research “can be applied widely to the academic subject matter of kindergarten through 12th grade... [and] show powerful and consistent effects for students in widely varying circumstances” (p. 25). The authors analyzed books, compiled multiple research syntheses, and surveyed educational researchers. They created a framework consisting of 28 categories that may influence learning and then grouped them into six general types of influence. Of those six types, classroom instruction and climate had a major effect on student achievement. In all, 91% of the studies related to parental involvement favored homes where parents worked cooperatively with the schools. One teacher said that characteristic classroom management had more of an effect than any other.

The researchers identified six instructionally related practices including aligned time on task, direct teaching, advance organizers, teaching of learning strategies, graded homework, and mastery learning. Although homework alone was shown to produce positive results, when

combined with specific feedback from the teacher the effect was tripled. These findings were similar to the findings of Marzano (2007) in that quality of the assignments, grade level, and the relationship to classroom lessons were also factors in determining the effectiveness of homework. Hattie and Timperley (2007) also showed homework as having a small positive effect size ($d = 0.29$), with a larger effect size ($d = 0.64$) at the secondary level.

Zemelman et al. (2005) collected data from teachers and experts in the fields of art, science, mathematics, reading, writing, and social science to create a definition of best practices. They expected to find a variety of visions concerning the ideal classroom. However, the basic insights into teaching and learning were unexpectedly indistinguishable among the seven organizations: The National Council of Teachers of Mathematics (NCTM), the Center for the Study of Reading, the National Writing Project (NWP), the National Council for the Social Studies (NCSS), the American Association for the Advancement of Science (AAAS), the National Council of Teachers of English (NCTE), the National Association for the Education of Young Children (NAEYC), and the International Reading Association (IRA).

The researchers made a list of the common conclusions in each curriculum area and divided them into two columns. Column one listed strategies that had a positive effect on student achievement and column two listed those techniques that negatively impacted learning. The list of strategies in column one included experiential learning, higher order thinking skills, reading primary sources, more student choice, attention to affective needs, cooperative and collaborative experiences, and varied roles for teachers and students. Column two contained lecturing, student passivity, one-way communication, classroom silence, reliance on textbooks, memorization of facts, grouping students by ability, and seatwork. Zemelman et al. (2005) identified 13

interlocking principles or theories from the two columns to characterize their idea of educational best practices. The 13 principles are:

1. student- centered,
2. experiential,
3. holistic,
4. authentic,
5. expressive,
6. reflective,
7. social,
8. collaborative,
9. democratic,
10. cognitive,
11. developmental,
12. constructivist, and
13. challenging. (Zemelman et al., 2005)

These classroom practices are unified and form a viewpoint of learning supported by professional organizations from mathematics, science, social studies, language arts, and reading (Zemelman et al., 2005). These values are evident in a variety of forms in various educational environments, but the fundamentals of the best practices research of Zemelman et al., (2005) are present.

Hattie (2009) also conducted a meta-analysis related to achievement in New Zealand. The data used for this study were comprised of over 50,000 studies and represented over 200 million students; it is perhaps the largest ever collection of evidence-based research involving

what works to improve learning. Variables involving achievement variance were distributed into six categories. These categories were student, home, schools, curriculum, teachers, and approaches to teaching. The researchers hypothesized that 30% of the variation in student learning could be attributed to teachers.

Hattie (2009) identified what it is that excellent teachers do to positively influence student achievement. A key finding from this study was that the most powerful single influence that positively impacts student achievement is feedback. An even more astounding discovery was that quality feedback has the most effect when teachers are the one receiving feedback about their teaching (Hattie & Timperley, 2007). Other teacher behaviors identified in the teacher category included: providing formative evaluation, reciprocal teaching, concept mapping (graphical representations), questioning, cooperative learning, and homework.

Teachers use many strategies in their classrooms. Opinions differ on what constitutes best practice, but similarities are evident. Multiple studies indicate that an emphasis on critical thinking, problem solving, questioning, and cooperative learning is needed (Berends, 2004; Hattie, 2009; Marzano et al., 2001; Silver, Strong, & Perini, 2000; Walberg & Paik, 2004). Research has also shown that classrooms should be student-centered and instruction should be differentiated (Berends, 2004; Marzano, 2007; Silver et al., 2000). Other findings incorporate small group instruction, integration, direct instruction, and mastery learning (Hattie, 2009; Walberg & Paik, 2004). These findings do not consider the specific instructional techniques one would use to incorporate the practices into the classroom. Visible teaching strategies would include the use of graphic organizers, note-taking, summarizing, guided and individual practice, setting goals and objectives, and reinforcing effort with specific feedback (Hattie, 2009; Marzano et al., 2001; Walberg & Paik, 2004).

Summary

This review of the literature provided an overview of educational reform, the research conducted on teacher effectiveness and accountability, the National Board for Professional Teaching Standards, and the definitions researchers have developed to describe best practices in instruction. It traced the history of the NBPTS to its beginning as an outgrowth from recommendations outlined by the National Commission on Teaching and America's future. A continuing theme throughout the literature has been the need for quality teachers.

While the details are imprecise, it appears that a relationship exists between teacher quality and student learning. The evidence for what characteristics define a quality teacher is diverse and research findings are mixed. The five core propositions of the NBPTS are based on the results of the research. The mission of the NBPTS is to advance the quality of teaching and learning by identifying accomplished teaching (NBPTS, 2012a). A teacher who earns the National Board Certification credential has undergone a scrutinizing process and has been determined to be someone who is accomplished, makes sound professional judgments, and acts in accordance with those judgments (Shakowski, 1999).

There are various studies that indicate NBC teachers have a positive influence on student learning and others that disagree. Evidence confirming the positive effect of NBC teachers on student achievement have been reported by Cavalluzzo (2004), Goldhaber and Anthony (2007), Smith et al. (2005), and Vandervoort et al. (2004). Other researchers have questioned the link between NBC teachers and increased student learning (Cantrell & Hughes 2008; McColskey et al., 2005; Sanders et al., 2005; Stephens, 2003; Stone, 2002). While the NBPTS professes to identify expert teachers, the literature does not fully substantiate that having National Board Certification guarantees that teachers are using research-based best practices.

An extensive research base exists in the literature regarding classroom practices both involving National Board Certification and instructional practices overall. Marzano et al. (2001) used a meta-analysis to identify which instructional strategies have a high probability of improving student achievement. Nine categories of strategies were identified as having a strong effect on student achievement. The categories include: (1) identifying similarities and differences; (2) summarizing and note-taking; (3) reinforcing effort and providing recognition; (4) homework and practice; (5) nonlinguistic representations; (6) cooperative learning; (7) setting objectives and providing feedback; (8) generating and testing hypothesis; and (9) questions, cues, and advance organizers.

A broad review of the literature on teacher quality and the use of best practices revealed little consideration of the actual classroom practices of Nationally Board Certified teachers. “Ongoing research on what National Board certified teachers look like in actual practice will continue to inform the debate about how to interpret the meaning of the certification designation, and the debate, more generally, about what constitutes quality teaching” (McCloskey et al., 2005). I investigated the classroom practices of Nationally Board Certified teachers. Using the nine best practices identified by Marzano et al. (2001) and the NBPTS, the purpose of this study was to explore the everyday instructional practices of NBC teachers who teach 4th and 5th grade in east Tennessee.

CHAPTER 3

RESEARCH METHOD

Introduction

To become Nationally Board Certified a teacher must invest a minimum of 1 year of his or her time and \$2,500. The Tennessee Department of Education offers scholarships that may provide \$1,250 toward the process and local school districts may provide additional funds. Many local education agencies throughout Tennessee provide increased salary or other stipends for the 10-year duration of the certificate. One way that teachers may meet the criteria of being highly qualified in Tennessee, as defined by the No Child Left Behind (NCLB, 2002) legislation, is to become a Nationally Board Certified teacher. The amount of time and the financial commitment on the part of teachers and the state of Tennessee raise the question, “Are the classroom practices of National Board Certified teachers considered best practice?” The purpose of this study was to explore the everyday instructional practices of Nationally Board Certified teachers who teach grades four or five in east Tennessee.

This chapter describes the research design, population, and sample size for the study. It explains the methods used for data collection and analysis; issues of reliability and validity are also discussed.

Research Questions

In order to investigate the instructional practices of Nationally Board Certified teachers and the potential impact on student learning, the following research questions were considered:

1. What instructional strategies do Nationally Board Certified teachers most often implement and which of those strategies are categorized as best practice?

2. How does the National Board Certification process impact instructional choices as reported by Nationally Board Certified (NBC) teachers?

Research Design

This study was a multi-site, qualitative descriptive and evaluative case study. Observations, interviews, and a checklist were used to collect qualitative and quantitative data for analysis. Data were collected from three classrooms in three schools located in two east Tennessee counties; thus, this study is described as multi-site. The investigation is classified as a qualitative descriptive case study because it generated a detailed account of each classroom under study. It is evaluative in nature because I used the information gathered to create descriptions and explanations and to make judgments (Lincoln & Guba, 1985; Merriam, 1988).

“Despite criticism, case studies continue to provide some of the most interesting and inspiring research in the social sciences” (Miller & Brewer, 2003, p. 24). A case study is generally used to answer one or more questions beginning with how or why (Fraenkel & Wallen, 2006; Merriam, 1988; Yin, 2003). In this study I used observations and follow-up interviews to explore how teaching and learning occur in the classrooms of Nationally Board Certified teachers. Stake (1995) and Yin (2003) base their approach to case studies on the constructivist philosophy. According to Baxter and Jack (2008) constructivists claim that truth is relative and that it is dependent on one’s perspective. This study fits the characteristics Yin’s (2003) definition of qualitative case study because it: (a) focuses on answers to how and why questions, (b) the researcher cannot manipulate the behavior of those being studied, (c) the researcher seeks to explore contextual conditions as they relate to the phenomenon under study, and (d) boundaries are not clear between context and phenomenon. I focused on three classrooms of

Nationally Board Certified teachers to explore the relationship between the National Board Certification process and observed teaching practices.

Population and Sample

The population for this study consisted of Nationally Board Certified teachers in grades four and five in east Tennessee. The population is limited to grades four and five because both grade levels are considered intermediate elementary grades and both are covered by the Middle Childhood Generalist certification for the NBPTS. According to the Tennessee Department of Education there are 43,300 public school elementary teachers in the state. Of those, 89 have obtained the Middle Childhood Generalist certification from the National Board for Professional Teaching Standards. By grouping the teachers by region, 16 Middle Childhood Generalists were identified in east Tennessee (NBPTS, 2011). A sample of three teachers was purposefully selected from this Nationally Board Certified population.

Data Collection

A letter was sent to each of the 16 Middle Childhood Generalist certified teachers in east Tennessee that detailed the specifics of the study and asked for their participation (see Appendix C). The letter explained the purpose of the study and the procedures implemented. An IRB approved response form and consent for participation was included in the mailing that included the participant's name, email or postal address, grade level, years of experience, school name, county, and the year they received National Board Certification (see Appendix D). Teachers demonstrated their willingness to participate in the study by completing and returning the response form. The response forms were used for the purpose of sampling and future contact with the participants.

After receiving five positive responses, building and county level administrators were notified to request permission to conduct research in the schools (see Appendices F and G). Upon receiving permission from the teachers, building administrators, and county administrators, a purposeful sample of three was selected based on their proximity to me. All teachers willing to participate were contacted after the sample had been determined to report on the status of the study. The two teachers who were not selected were notified (see Appendix H) and the three teachers selected to participate were provided with the schedule for observations and interviews. All teachers who agreed to participate received a copy of the results.

Observations and Field Notes

After determining the sample and schedule for visits, the observations began. Each participant was observed for 3 consecutive days. A checklist (see Appendix I) was used to tally the number of times each teacher used a best practice as identified by Marzano et al. (2001). During observations field notes were also used to document the use of best classroom practices; the observations consisted of my recording what occurred in a teacher's classroom during her day. According to Fraenkel and Wallen (2006) field notes are a researcher's written account of what he or she hears, sees, experiences, and thinks while collecting and reflecting on the data. Bogdan and Biklen (2003) suggested that field notes consist of two kinds of materials, descriptive and reflective. Descriptive field notes tell about the setting, people, and what happens while the researcher observes. Reflective field notes present what the researcher thinks about as he or she observes (Bogdan & Biklen, 2003). Artifacts were collected during the observations including lesson plans, assignments, worksheets, assessments, classroom layout, and photos.

Interviews

Each participating teacher was interviewed on the final observation day. Interview questions were based on the observations and centered upon why the teacher chose certain instructional strategies. Each interview began with scripted questions (see Appendix J); other questions developed during the interview. Interviews were recorded and transcribed by me. After 3 days with each participating teacher, I had field notes, artifacts, and interview recordings for each observation.

Data Analysis

Data collected from the observation checklist, observation field notes, artifacts, and transcribed interviews were used to develop a qualitative descriptive account of the findings. Coding is a way to organize data in preparation for analysis of qualitative research. I developed a coding system to use during data analysis.

McMillan and Schumacher (2006) offered several steps that researchers can follow in developing an organizational system. The first step is to get a picture of the whole situation that involves reading the raw data to get a big picture of the phenomena. The second step uses the margin notes that are taken and a coding system developed during subsequent readings. In this context, code is a descriptive term for the subject matter or the topic of the observation. The third step in developing a coding system is to look for duplication. The final step in developing a coding system is to evaluate and refine the system. As the researcher reads and analyzes data he or she continues to refine the organizational system. I developed an organizational system that was used throughout the study, which allowed me to sort and retrieve data (Ritchie & Lewis, 2003).

The coding of data is an ongoing process for the qualitative researcher. The researcher will ultimately use the coding method as a way to identify categories and to recognize patterns or emerging themes from which interpretations can be made. In this study patterns and emerging themes were explored and an interpretation of the findings was related to the literature and the idea of best classroom practices. Lincoln and Guba (1985) described data analysis in qualitative research as open-ended and inductive. While data were reviewed, the patterns and themes were coded. The nine best practices identified by Marzano et al. (2001) served as a framework for the coding categories.

I first read all field notes and listened to and transcribed all interviews. During the first reading I took notes on possible ideas about categories and relationships. This process was used throughout the entire observation period. As strategies and themes developed, they became more clearly defined (Lincoln & Guba, 1985). I continued the study looking for certain strategies in each classroom; some coding categories were designated at the start. These codes included nine best practices: (1) identifying similarities and differences; (2) summarizing and note-taking; (3) reinforcing effort and providing recognition; (4) homework and practice; (5) nonlinguistic representations; (6) cooperative learning; (7) setting objectives and providing feedback; (8) generating and testing hypothesis; and (9) questions, cues, and advance organizers (Marzano et al., 2001).

Reliability and Validity

Qualitative research is used to understand phenomena in a naturalistic setting. It subscribes to a constructivist theoretical framework that says there are multiple realities based on perceptions of individuals and groups. This is in contrast to the quantitative theoretical framework of logical positivism. Logical positivism suggests that there is a single reality

separated from the feelings and beliefs of the individual (McMillan & Schumacher, 2006). Because of differences in the theoretical schemes of qualitative and quantitative research, validity and reliability must be viewed differently in each construct.

McMillan and Schumacher (2006) referred to validity in qualitative research as the degree to which the interpretations have mutual meaning to both the participant and the researcher. In other words, do the participants and the researcher agree on the nature and meaning of the situation? By using follow-up interviews to discuss the data collected during observations, I used participant review to ensure the validity of my interpretation.

McMillan and Schumacher (2006) suggested the use of as many strategies as possible to enhance the qualitative research design. The use of prolonged fieldwork is one way to improve validity; the more time that one spends in observation and taking field notes, the more insight one will have. In this study I used multiple observations on consecutive days to increase my understanding of the circumstances studied. The use of multi-method strategies, or triangulation, also augmented validity. The methods used in this study included observations, interviews, checklists, and collection of artifacts, which provided the triangulation necessary to improve validity.

Another way to enhance validity in qualitative research is to use verbatim accounts and participant language. This simply means using everyday terminology and not technical jargon when conducting interviews. More information is gained when the participant is comfortable and can understand what the researcher is asking. The use of verbatim transcripts is also important when looking for documentation to back up the researcher's interpretations. Recording data through the use of audio recordings, photographs, and video recordings assisted me in the accuracy of descriptions. Additionally, these recordings were used to illustrate and provide

examples of my findings. Participant review was used to validate research findings. After each interview I supplied the participant with a synthesis of our interview to review for accuracy. The aforementioned techniques were used during this study, which was conducted over a course of 4 weeks. The data included extensive field notes that were reviewed daily, nine observations, nine checklists, and three interviews. These strategies provided a more comprehensive insight into the phenomena being studied. Throughout the research process I self-examined myself and my interpretations. The use of this reflexivity decreased the chance that bias would negatively impact the findings.

Summary

This chapter includes a description of the research design, population and sample, data collection, and the data analysis methods and procedures used in the implementation of this qualitative study. The purpose of this study was to explore the everyday instructional practices of NBC teachers who teach grades four and five in east Tennessee. Data were collected from participants who had given informed consent and who were, at the time of the study, Nationally Board Certified in the area of Middle Childhood Generalist. This study was limited to three participants in east Tennessee.

CHAPTER 4

ANALYSIS OF DATA

Introduction

The purpose of this study was to explore the teaching practices of Nationally Board Certified (NBC) teachers. Presented in this chapter are the findings of a qualitative study of elementary NBC teachers on their everyday instructional practices in the classroom and how the National Board Certification process impacted those practices. Research conducted by Marzano et al. (2001) identified nine best practices of effective teachers. Those best practices were used as a framework for observation. Through observations and interviews I investigated the teaching strategies used by NBC teachers and noted how those strategies compare to those identified by Marzano et al. (2001). I further sought to understand how the National Board Certification process affected the participating teachers' strategy choices. In a time of ever-increasing emphasis on standards and student achievement, and with the addition of new government mandates in education, through this study I sought to explore the curriculum decisions and teaching practices of professional teachers. Specifically, the following research questions were investigated:

1. What instructional strategies do Nationally Board Certified teachers most often implement and which of those strategies are categorized as best practice?
2. How does the National Board Certification process impact instructional choices as reported by Nationally Board Certified (NBC) teachers?

During this study themes and categories were identified through the conceptual framework of the National Board for Professional Teaching Standards (NBPTS) and research-based best practices both within-case and cross-case to explore the everyday teaching strategies

implemented by NBC teachers and the influence, if any, that the National Board Certification process has on those strategy choices. A review of the research conducted by Marzano et al. (2001) identified nine practices that have a high probability of increasing student achievement. These nine best practices are: (a) Identifying similarities and differences; (b) summarizing and note-taking; (c) reinforcing effort and providing recognition; (d) homework and practice; (e) nonlinguistic representations; (f) cooperative learning; (g) setting objectives and providing feedback; (h) generating and testing hypothesis; and (i) questions, cues, and advance organizers. These practices and the emerging themes of reflection and student-centered instruction were used to conduct an interpretation and analysis of data. All data were analyzed and coded for beliefs and observed teaching practices.

Findings were based on four sources of data according to the study's research questions. First, classroom observations were conducted to gain a closer look at the teaching strategies implemented by NBC teachers. Second, interviews were conducted to follow-up on the classroom observations and gather deeper responses to the research questions. Third, artifacts including pictures, lesson plans, and student assignments were collected. The documents collected from classroom observations served to support the reliability of field notes and reported perceptions and increased the internal validity of this qualitative study. Finally, during data analysis a checklist was used to identify which strategies used by NBC teachers have been identified as best practice according to Marzano et al. (2001). Included in this chapter are a description of the sample, data collection methods, the process used for data analysis, descriptive data characterizing each of the three cases, within case summaries, and a cross-case comparison of data (Merriam, 1988).

Sample

Purposeful sampling was used for this study of Nationally Board Certified teachers and best teaching practices. The participants for this study consisted of three NBC teachers in east Tennessee with certification as Middle Childhood Generalist. Participants were purposefully selected from an online directory of NBC teachers. One participant had been teaching for 8 years, one for 13 years, and one for 21 years. Their years of teaching experience at the studied grade level ranged from 8 to 17 years. All three teachers held a masters degree in elementary education. One participant had been Nationally Board Certified for 1 year, another for 4 years, and the last for 9 years. Because of an extremely limited cross-section of ethnicity in potential participants, all were Caucasian.

Participants chosen represented two counties located in east Tennessee. One participant was employed in a large urban school district and the remaining two were from a more rural school district. Two NBC teachers were employed in Title I schools and one was not. Table 1 describes the NBC teachers participating in this study; pseudonyms are used for the participants.

Table 1.

Participating Nationally Board Certified Teachers

NBC Teacher Name	Year Certified	# Years Teaching at Time of National Board Certification	Degree Level	Total # Years Teaching	Grade Level
Cathy	2008	4	Masters	8	5
Jessica	2003	11	Masters	21	5
Anna	2011	12	Masters	13	4

Data Collection

Prior to the beginning of this study the director of schools in each school district was contacted to explain the purpose and the extent of this study. Permission to conduct research

within the school district was obtained through an informed consent form signed by the director. Following receipt of permission from the directors, each Nationally Board Certified teacher and his or her principal was contacted to determine his or her willingness to participate in this study. Informed consent forms were signed by all participants before scheduling the observations and interviews. Following the observations and interviews, participants received a summary of the field notes and a verbatim transcript of their interview, which provided the opportunity for clarification and modification of all recorded responses.

Triangulation of data in this qualitative study was achieved through the use of multiple strategies. Methods applied in this study consisted of observation, interview, artifacts, and checklists. Additionally, triangulation was realized through naturalistic observation of the NBC teachers' working environment, field notes, participant review, examination of artifacts, and recording data with photographs and video. The use of these multi-method strategies improved the validity of this study.

Data Analysis

In this multi-case, qualitative study I used the constant comparative method throughout the data collection process. I made margin notes regarding possible themes and emerging categories as I continuously looked for links within the data (Merriam, 1988). More formal analysis was completed by systematically coding the data (see Appendix K).

Within Case Studies

In this section, I describe each of the three participants, her classroom practices, and her classroom environment by using the information collected during observation and that each NBC teacher provided during the interview process. The purpose of this section is to provide

background information that will allow readers to identify with each participant and with the individual experiences that each brings to the field of teaching.

Nationally Board Certified Teacher One

Nationally Board Certified teacher one is called Cathy for the purpose of this study. She has taught for 8 years and has been Nationally Board Certified for 4 years. She teaches fifth grade in a non-Title I school in a rural county in east Tennessee. She also serves as the team leader for fifth grade, the Beta Club Sponsor, and as the Scholar's Bowl Coach. About teaching fifth grade, Cathy said, "This is the best age to teach....the age when kids are starting to be independent, yet still need a role model."

Cathy's school is one of the more affluent schools in the county where she is employed. The building was constructed in 1993, which made it one of the newer buildings in the school district. Upon entering the building, I saw colorful displays of student work and signs directing visitors to the office. I was greeted by the school secretary and after I had signed in I was directed to a classroom at the end of the nearest hallway. Cathy's room was situated near the exit to the playground.

Cathy's room was an average size and was furnished with four long tables for student use. When asked about why she had chosen tables over desks, her response was, "Tables lend better to group work and conversation between students. I like for students to be able to talk." The room was equipped with two student computers, an interactive whiteboard, an ELMO™ document camera with projector, and an iPad™. There were a variety of areas for students to work including a small group area, a reading corner, and other center areas for differentiated activities. Objectives were written on the whiteboard for each day and class goals were displayed on a whiteboard at the back of the room. The classroom walls exhibited student work, classroom

expectations, word walls, small group assignments, and a calendar. Student materials were neatly organized in containers on shelves and in cubbies. Walking into the room, I realized that the workspace was arranged with the student in mind because the teacher’s desk was in a corner and not a focal point in the room. The room arrangement and the student work displays appeared to create an atmosphere in which learning was appreciated and fun. Cathy emphasized, “Learning should be fun and everybody should be engaged.”

Cathy’s homeroom consisted of 23 students; 13 girls and 10 boys. There were 21 Caucasian and 2 African-American students; 4 students had Individual Education Plans (IEPs) and 2 were considered to be advanced. Students at this school were leveled for reading and math instruction. Cathy taught the middle to low reading group and the advanced math group for all fifth grade students. So, while some of Cathy’s students went to other fifth grade classrooms, students from other classrooms came to her for their reading and math lessons. Table 2 shows the demographic make-up of Cathy’s reading and math groups.

Table 2.
Composition of Cathy’s Reading and Math Groups

Group	Total #	Boys	Girls	Caucasian	African-American	IEP	Advanced
Middle to Low Reading	18	10	8	17	1	5	0
Advanced Math	22	11	11	22	0	0	8

Firmly established routines and procedures were evident in this classroom during my 3-day observation; the description of Cathy’s classroom includes a synthesis of the three observations rather than each day individually. The morning consisted of students entering the

classroom, putting away supplies in their individual cubby, turning in homework, and beginning a bell-ringer activity that consisted of spiral review activities. Cathy stood at the door and greeted students with a high-five and positive comments such as, “glad to see you today.” Students were allowed to sharpen pencils at any time, as long as someone was not addressing the entire class. Following announcements, students changed classrooms for math. Each day’s routine was the same and students followed it with little or no direction from the teacher. Cathy explained her procedures and expectations for the class,

I start on day one and specifically teach expectations. We spend probably 3 weeks practicing the procedures and routines in the classroom. We have one classroom rule and that is to respect one another. I stress the importance of them taking responsibility for their own behavior. I tell them that they choose how they react in all situations. I think it is important to build that sense of family in the classroom. I treat them all like they are my own.

After students changed classes for math, Cathy began each class by giving students the daily agenda. Students had the opportunity to write the objectives and assignments in their planners. While students completed a spiral review, Cathy collected homework and quickly checked for completeness and accuracy. During the spiral review time, students were allowed to discuss the problems with their peers and ask questions. One member from each table collected the necessary materials – several calculators – for the entire table. The teacher moved around the room helping individuals as necessary. Feedback was given often in the form of verbal praise, “I hear a good math debate at this table,” or a positive gesture such as a thumbs up. It appeared that the students and teacher had a positive relationship as evidenced by the conversation between Cathy and her students, the respect shown between children and adult, and the laughter and relaxing climate of the classroom. Cathy described why she teaches the way she does,

I like it when the kids get in the car in the afternoon and feel like they haven’t done anything but they played all day. I work hard to challenge my students because I was bored in elementary school. As a child I was sent to the principal’s office to do reading

by myself. Therefore, I strive to have students work in groups and I try to include inquiry and challenge for all students but especially the high kids.

The class graded their own spiral review while individual students completed and explained their answers on the interactive whiteboard. The teacher allowed students to agree or disagree with the given answer and give their justifications before telling whether the answer was correct or not. Students asked many questions during the review. “Students learn from their mistakes,” said Cathy. “I always have time for them to make corrections on their work.” Following the spiral review, Cathy went over mistakes that had been made on previous work and conducted a mini re-teaching lesson when necessary.

Cathy used technology to introduce and reinforce the skills and vocabulary for each lesson. “My classroom is inundated with technology,” explained Cathy. “Students use iPads™ to look up books, reading levels, and to read literature. The Smartboard™ and projector are used to provide interactive lessons, view eBooks™, and watch animated books and videos.” Cathy’s love for technology was evident during my observations. For example, during one math lesson, she used an interactive website to teach platonic solids and to demonstrate how to make three-dimensional solids using a net. Students were able to refer back to this website while completing the hands-on activity of making their own nets and solids from paper and then from straws. Students appeared comfortable with the use of computers and were efficient at finding the resources needed from the Internet. Technology was a major focus in this classroom.

Other math activities were completed in centers. The math investigations center was setup for students to use a digital camera to “find and capture pictures of solid figures” and to “be prepared to present these to the class.” Another center included the interactive whiteboard for students to use in accessing various websites including *www.funbrain.com* and *www.ixl.com*. A third center was designed for students to “create a vocabulary foldable or graphic organizer

including the following terms: face, vertex, net, edge, surface, area, and volume. For each term, include a definition in your own words and a sketch.” Each center activity included opportunities for problem solving, use of manipulatives, hands-on activities, and teacher modeling. Cathy explained, “I really like hands-on stuff, especially in math. I want to build their knowledge using cross-curricular activities to integrate art, technology, and the sciences.”

Students changed classes again for reading. Cathy’s reading class for the day always began with a time for students to read a book of their choice. While students were reading, Cathy also took time to read, “I believe that I should be a model for my students. I shouldn’t ask them to do something that I don’t do myself.” She spent about 10 of the allotted 20 minutes reading a professional book and the rest of the time preparing for the lesson and changing the small group assignment board. She also stopped her own reading to have short reading conferences with individual students. During this time students could choose to read at their table, on a beanbag chair in the reading center, or at any other comfortable spot in the room. Some students took Accelerated Reading (AR) quizzes, some read silently, and some read with a partner by quietly taking turns reading a common text (usually the book from their book study). In discussing her instructional strategies, Cathy explained that she uses strategies based on the students’ needs,

It all depends on the kids, their ability levels, personalities, [and] are they getting it? I choose strategies that I feel the students will relate to and be successful with. I like students to be creative. I use lots of activities that ask the students to be self-expressive.

After the silent reading time, Cathy transitioned into center time where students practiced the skills for the week. The weekly objectives were listed on the board. Cathy had created five small groups and each group was assigned to a different center each day. Procedures for each center had been established and it was evident that students knew how to proceed. The centers consisted of the teacher center, an assistant center, a computer center, a newscast center, and an AR center. A novel study was the focus of the teacher center. The assistant center was led by a

teaching assistant who helped students with specific skills like cause and effect, author's purpose, and sequencing. In the computer center students worked on computer programs that reinforced reading skills using the websites bookmarked by the teacher. Students in the newscast center created their own newscast and recorded it with an iPad™, while other students continued to read individually and with a partner to complete AR quizzes in the AR center. As each group moved through the centers during the week, the teaching strategies were changed. One group required more time and more help and Cathy made both available, "I work with each student on his or her level. Sometimes students need more support than others." Each activity resulted in a final product; however, the students had choices as to how to create that product.

Cathy described her idea of how the classroom environment is related to literacy learning. She contended,

I think the environment is very important to literacy development. In a literacy classroom, the environment needs to be cozy and comfortable and non-threatening for students to develop a love of learning. The classroom needs to be literacy rich and materials should be easy to get to and identify. Then, the kids need to be taught how to choose a book that fits their ability and interests. All of these things, plus having a teacher who loves to read and encourages reading, sparks a life-long love of reading in students.

Cathy's ideas about how the classroom environment is related to learning are clearly evidenced in her classroom as she continued the reading lesson in small groups.

During the teacher small group lesson, each group read a different book. While reading the students were asked to come up with their own questions to ask the group. During their group discussion of the text, it was apparent that the teacher had good rapport with her students. For example, students were comfortable relating their own life experiences to the text. One boy told a story about how he had treated a new student in class, which resulted in a conversation about how the group would want to be treated if they were new. Cathy connected with her students by saying, "This makes me think about something that happened in my own life..." and proceeded

to tell a personal story. Throughout the remainder of the small-group time, Cathy used the authentic text to have students recognize figurative language and to complete a graphic organizer categorizing phrases as similes or metaphors. Students were allowed to complete the assignment with the group as the teacher quickly touched base with each of the other groups and assisted with any problems.

Each day after lunch and recess Cathy's homeroom students participated in science and social studies. Each subject was taught from a problem solving perspective. Activities for these areas varied from day to day but always included games and other group assignments. Music and technology were incorporated on a regular basis. For example, students completed a state project that included creating a visual to share with the class by using Internet resources and a PowerPoint presentation. Additionally, groups worked together to create animal habitat dioramas for display. Classical music played during student work time. The final transition for the students each day included cleaning up the work area, packing up items to take home, and a read-aloud by the teacher. After the afternoon announcements were completed, Cathy dismissed her students by standing at the door and telling each student goodbye as they left for the day.

In this classroom there was evidence of all nine best practices as identified by Marzano et al. (2001). The classroom was student-centered with chances for students to work in large group, small group, and independently while students practiced their learned skills. Throughout each day, students were allowed to collaborate, socialize, and engage in hands-on learning while the teacher provided consistent and regular feedback to recognize student effort. Students were asked to synthesize their learning by journaling, note-taking, and creating visual representations. Objectives were clearly stated and students had set goals for their own learning. Students had opportunities to question and test hypotheses. Although Cathy used differentiated activities to

meet student needs, there was evidence of a challenging environment in which the teacher held high expectations for each student.

Reflection was a main focus in this classroom both by the students and the teacher. Cathy said, “To me, reflection means to continually think about the impact of what I am doing on student learning. I want students to also think about how what they are doing is affecting their learning.” The use of journals encouraged reflection by the students and the teacher. In our interview Cathy mentioned that the National Board Certification process increased her reflective practice during the act of teaching and beyond. She said,

The National Board Certification process required me to consider and reflect on the impact that everything I do has on student learning. This covers everything from a detailed lesson to a phone call with a parent. As a mentor to new teachers, this has helped me to recognize and stress the importance of making sure that everything we do in a school day impacts learning. Children were the reason I became a teacher. This process helped me to focus less on administrative tasks, etc. and really hone in on my teaching.

Cathy gave an example of how she had revised her lesson plans based on her reflections of how the lessons had previously been taught and how effective the lesson had been in increasing student achievement. Because she found “the power of reflection,” Cathy attempted to incorporate additional opportunities for her students to reflect upon their learning in class.

Nationally Board Certified Teacher Two

Nationally Board Certified teacher two is known as Jessica. She has taught for 21 years and has been Nationally Board Certified for 9 years. She teaches 5th grade in a Title I school in an urban county in east Tennessee. She also serves as the team leader for 5th grade and a mentor for new teachers. Jessica describes her love of teaching in this way,

After 21 years of teaching, I have seen many changes in the education system, but one thing stays the same – students love to learn! I truly enjoy finding new and interesting ways to teach my students, and I hope each and every child will grow and learn more than they ever have.

My observation of teacher two took me to an urban school located close to an Interstate highway in a fairly low socioeconomic area of a large city. The school was an older one that had been in use for many years. The entrance to this school was difficult to locate and I had to ask someone outside which entrance to use. I was directed to a back door and then found my way up to the office by again asking for directions. After signing in, I traveled back down the hallway in which I had entered and into a classroom located about halfway down the hall. The halls were lined with student lockers on both sides. Nationally Board Certified teacher two, Jessica, was in her classroom preparing for the day as I entered.

This classroom was a little larger than the first classroom I had visited. Technology in Jessica's room consisted of a Promethean™ interactive whiteboard, four desktop computers, two laptop computers, an ELMO™ document camera with projector, and a listening center.

Regarding technology, Jessica said,

I try to incorporate technology in almost every lesson. Partly because I enjoy using it, but mainly because students seem to respond to it better than the traditional pencil, paper, and book. I use the Activ™ board to present information and engage students in learning. Students often use the computer to practice skills and create documents, PowerPoints, etc.

Students sat around five kidney-shaped tables. An additional kidney-shaped table was situated in a corner and used for small group instruction. Jessica said, "Tables provide a real-world setting where students can work cooperatively." Around the perimeter of the room were six computers for student use, a reading corner, and various center areas with storage for supplies. Students kept personal belongings in their hall locker. At the right of the room, near the doorway, was an island counter that spanned nearly the length of the room; the area included a sink. Student work was on display all over the room. The walls were adorned with student work samples, motivational posters, word walls, rules and expectations, genre lists, and small group assignments. A collection of objects was exhibited on a bulletin board as the "solid figures

museum” at the back of the room. In another area, names of students who had reached their Accelerated Reading (AR) goal or earned an *A* on their spelling test were listed. Goals for the day were written on sentence strips attached to a whiteboard at the front of the room. Student supplies such as glue, scissors, calculators, dry erase markers, and hand-held whiteboards were neatly stored in baskets for groups of students to use at the tables. The room was arranged for student use with a small teacher’s desk tucked away in a corner. This classroom suggested a busy environment where cooperation and learning were valued.

Jessica’s homeroom consisted of 20 students with 12 boys and 8 girls. Of the 20, 14 were Caucasian, 5 were African-American, and 1 was Asian. Two students were served in special education. Jessica taught this group of students for all classes except math. This school leveled its math classes. Advanced students were pulled while the remaining students stayed in their homeroom. Jessica taught a mixed ability math group consisting of 23 students with 15 boys and 8 girls filling her math class. Jessica’s math class included 19 Caucasian and 4 African-American students; 3 of her students received special education services. Table 3 shows the demographic make-up of Jessica’s homeroom and math group.

Table 3.

Composition of Jessica’s Homeroom and Math Group

Group	Total #	Boys	Girls	Caucasian	African-American	Asian	Special Education
Homeroom	20	12	8	14	5	1	2
Math	23	15	8	19	4	0	3

The routines and procedures were well established so my description of the observations is a composite of the 3 days. Jessica explained,

[For the first] 2 or 3 weeks at the beginning of the year, I focus only on procedures and expectations. I take the time to model and students practice multiple times. I don't usually start the curriculum until after the procedures and routines are in place.

When students entered Jessica's classroom, they quietly put away their belongings, placed homework in the appropriate spot, made a lunch choice, sharpened pencils, and immediately began to work on the morning assignment. Following the morning announcements, the advanced students changed classes for math. As some students left the classroom to go to math class, Jessica stood at the door and spoke with each student using positive comments such as "have a great day" and "do your best today."

As students entered her classroom for math, along with a giving a positive comment, Jessica handed out a spiral review for students to begin. She reminded students to "show your work" as she moved around the room observing students and helping individuals when needed. After about 10 minutes, Jessica used a hand signal to get her students' attention and the class began to check their work. Individual students were called to the whiteboard where they worked the problem and explained their thinking. Before assessing the students' answer, Jessica asked the other students to give a "thumbs up or down" to indicate their agreement or disagreement with the answer. If a student worked a problem incorrectly, Jessica prompted the student with questions such as "Why do you think that?" or with comments to redirect student thinking. Examples included, "Here's the way I'm thinking," and "I'm not seeing that in my head. I might go in another direction." Each student at the board chose who would go next by gently tossing a stuffed dog to the next person. Students in this class appeared to be comfortable working with others and seemed to feel secure with taking risks as evidenced by their willingness to participate and correct mistakes. Jessica supported this conclusion. During the interview, she said,

I strive to create a classroom environment where students feel comfortable working both independently, in small groups, and in whole group. While I'm working with a small group, students are encouraged to work with and consult their peers. Based on students'

ability, they are given assignments to practice and/or enrich the specific skills and vocabulary. Materials and books students may need are easily accessed and labeled, which I feel helps things run smoothly. They are encouraged to be creative and go beyond just the required expectations.

After students finished with the daily spiral review, Jessica seamlessly transitioned into a mini-lesson on the focus skill of the day. She used a variety of ways to introduce skills with videos and PowerPoint presentations. Jessica modeled several examples and always related the skill for the day with what students had done previously. After the mini-lesson students had the opportunity to practice the skill with a partner or in groups. For example, one day the students worked with a partner to calculate problems on hand-held whiteboards and then complete a practice page together. On another day students worked in teams to play a game dealing with inverse operations. Jessica said,

I like for students to work together because it feels more authentic. I mean, how many times are we asked to complete a task entirely on our own? We usually work in groups. Our school has all kinds of teams, focus groups, and committees. By allowing students to work together, I feel that I provide a more real-world setting.

Teacher feedback was given regularly and Jessica encouraged her students to think for themselves and work cooperatively to find answers. “Focus on what you do know. Get part of it right,” she would say, “Talk to the people around you, what did they do?” While students worked in groups, Jessica pulled three or four students to a separate table and worked with them in a small group to provide additional support. Finally, the class concluded with the students completing a short independent practice. The format for math class was the same each day. Subsequent to beginning with a spiral review, a mini-lesson occurred, and the lesson culminated with a quick check as independent practice. Jessica explained, “By following the same format each day, students know what to expect and come to class more prepared than if the routine changed every day.”

Teamwork was encouraged throughout the lessons as students worked in groups to solve problems. Students were required to explain their thinking both orally and in written form. It was evident that the teacher held high expectations for every child. This was supported by Jessica's statement, "I believe that all students can learn and that they will learn, given the right supports. I expect all my students to do their best." As the researcher, I could not differentiate through observation which students had an IEP and which did not. All students were held accountable for their own learning as seen by the level of questioning used by the teacher and the quality of student work. "I don't let the kids take the easy way out. They must tell me reasons why they think the way they do and justify their thinking," Jessica continued.

After math class had been completed, the students returned to their homeroom. Next on the agenda was a special class such as library, art, or music. Following the special class Jessica began the reading block for that day. She described her ideas about teaching literacy and explained her literacy teaching practices,

During my literacy instruction, I employ various strategies and techniques. I usually begin by introducing vocabulary and/or the new skill in a whole group activity of some sort. I may use a flipchart, PowerPoint, teacher read-aloud, Think Aloud, graphic organizers, compare and contrast, etc. to introduce the skill. Once students have a basic understanding of the concept, students work in pairs or small groups to practice the concept. With both higher- and lower-level students, I will try to gauge understanding in direct instruction small group activities. I try to help students take responsibility for their learning and work with a weekly "To Do" list. This list is differentiated for each reading group level. Some assignments are to turn in, and some are just to practice. Assignments not completed in class may be taken home.

Jessica's ideas were clearly seen during my classroom observations.

As students returned to their home classroom for reading, they were given a to-do list by the teacher. An example of the to-do list is given in Appendix L. The to-do lists were different for each child based on academic level. Students found their seats and were ready to begin as soon as all students had arrived. Jessica began the lesson by discussing the plan for the day. "I

always like for students to know what is coming. I give them a rundown of the day at the beginning of each lesson,” Jessica commented. A grammar mini-lesson was given followed by students checking work from the previous day. Once again students would go to the whiteboard and mark their answer and give an explanation as to why that answer was chosen. The stuffed dog that had been used in math was again employed by students to choose the next person. After the grammar lesson Jessica went over the directions for the to-do lists and explained a graphic organizer that students would use to complete a summary of the story they had read. She explained, “Graphic organizers are a staple in my classroom. I love to use them in reading because they help to focus students’ thinking.”

Subsequent to the grammar lesson students began work on their to-do list. Each student was responsible for the items on his or her list and it appeared that students were well versed in the routine and structure of the classroom. During this time Jessica called small groups of students to the back table for instruction. While she was meeting with the small groups, all remaining students worked on the assignments from their to-do list. Jessica stated that she felt that students were more motivated “when they are given choices.” She continued by saying,

I understand that students learn in different ways so I try to allow for individual differences – giving choices when possible. Before the NBC process, I did not think so much about how I was going to teach something. Now, I spend many hours a week trying to take the learning out of the textbook and into meaningful experiences for my students.

This idea was supported during the observations when students were allowed to make choices as to what assignment they would complete first and also if they wanted to work alone or with a partner. It was clear that students understood the teacher expectations as evidenced by the students’ work habits and focused attention on the assignments. Jessica explained, “I do expect a lot from my students. They are almost ready for the middle school; I want them to be ready.”

Jessica formed four reading groups based on student ability and she met with all four groups every day. Each group had a different focus based on the individual needs of the students. The time spent with each group varied depending on the students' understanding of the skill and the amount of teacher support needed. One group was working on Latin Roots, another on writing a summary, the next group focused on vocabulary, and the last group worked on a journal writing to supplement a novel study. In each group Jessica modeled the skill being taught and the students had the opportunity to work together or independently to practice the skill. For example, in one group Jessica completed an activity with the students by providing a model for each question. In other groups the students completed activities independently and Jessica only discussed the questions where students indicated they had a problem. Each day's lesson would build on what had been done the previous day. Jessica used scaffolding effectively as she would move students toward working more independently. After completing the small group instruction Jessica asked students to clean up and turn in completed work to their cubbies. Incomplete assignments were placed in a reading folder so that students could continue working on them the next day. All assignments from the to-do list were expected to be completed and turned in by the end of the week.

Students also participated in science and social studies lessons each day. In science students were preparing to begin a research project. Jessica provided the main areas for research, which included desert reptiles, ocean mammals, famous children's authors, immigration stations, and wars. Students brainstormed topics that would fit into each of these categories and each student chose a topic from the brainstormed list. No two students were allowed to have the same topic. Other activities included painting plant and animal cells with labels depicting the different parts, using flash cards and three dimensional models to review the function of the parts of a cell,

group reading and taking notes about the Civil War, and independent work related to the Civil War. The activities changed from day to day but always included some type of group work and problem solving activity.

As each day came to an end students were asked to complete a journal entry about what they had learned that day. This was followed by a daily routine of packing up and tidying the work area. All completed work was turned in and anything that should go home was distributed and put in students' book bags. When the room was clean and book bags were packed, students lined up for recess. Students left for home immediately following recess.

It was evident that all of the nine best practices identified by Marzano et al. (2001) were present in this classroom. Both the room arrangement and the student activities gave evidence of a student-centered classroom with opportunities for collaboration and creativity throughout each day. Jessica held high expectations for her students while she also differentiated her instruction to meet the individual needs of all her students and fashioned appropriate and demanding activities for each of them. Students had responsibility for their own learning. They were expected to follow directions and to do their best work at all times.

Jessica's students were involved in real-world experiences in all academic areas and were expected to recognize similarities and differences in context. The goals and objectives were posted daily and students appeared to understand what they were expected to know at the conclusion of each lesson. Through the use of cooperative learning, students were able to participate in hands-on learning as their teacher provided regular feedback to correct mistakes and acknowledge effort.

Opportunities were provided for students to create and recognize their own learning through the use of journals, graphic organizers, and note-taking. Student discussion provided

opportunities for students to ask questions, test their thinking patterns, and also to reflect upon their ideas and understandings. This classroom provided an atmosphere where students were held responsible for their own learning. Jessica supplied challenging activities and ensured that student needs were met by differentiating her instruction.

Once again, reflection appeared to be important in this classroom. Jessica said, “I engage in reflective practice because my job is to teach students. Just because I like something doesn’t mean it works for the kids. Reflecting on how effective something was or wasn’t helps me understand my students better.” The students concluded each day by reflecting on what they had learned through their journal writing, which gave students a chance to clarify their thinking and to ask questions when they were unsure. The teacher responded to her students’ journal writing with reinforcing comments and reteaching as necessary. Jessica stated that reflection was instrumental in her teaching. This was evident in the monitoring and adjusting that was shown in her lessons. She said,

Reflection has made a major difference in my teaching. I continuously reflect on my teaching. From one class to the next, I reflect on what was successful and what was not. From one day to the next, I consider what general strategies worked and how they may be modified for future lessons. At this time of year, I am reflecting on one year to the next – what did I do with this group that seemed to help them grasp a concept better?

Nationally Board Certified Teacher Three

Anna was the third Nationally Board Certified teacher I observed. She has taught for 13 years and has been Nationally Board Certified for 1 year. She teaches 4th grade in a Title I school in a rural county. She is the team leader for 4th grade at her school and also serves as a mentor for new teachers, School Improvement Committee Chair, and Science Fair Coordinator. Anna stated, “I enjoy teaching children and my greatest satisfaction is seeing students succeed and watching them develop a love of learning.”

The last observation took me to an old school located in a very low socioeconomic neighborhood of a small town. It was located on a hill surrounded by government project housing on one side and small houses on the other. It was also in a high-crime neighborhood and had been broken into on several occasions. Upon entering the building I found a painting of the school mascot and a sign that directed me to the office. After signing in at the office I was led by a student to the classroom located at the end of a long hallway. The halls in this building displayed student work and seasonal bulletin boards.

I was welcomed into the classroom by NBC teacher three, Anna, who was preparing for the day. The room was large and filled with materials, tables, books, and other activity displays with the teacher's desk in one corner. There was a large area at the back of the room that was used for reading, which contained two bookshelves filled with baskets of books labeled by genre. The students sat at four large tables and a small group table was located at the rear of the room. The walls were covered with student work and motivational and instructional posters. Rules for the class were displayed at the front of the room. Daily objectives were written on a whiteboard at the front of the room as well. Technology consisted of an interactive whiteboard, ELMO™ document camera with projector, an iPad™, and three computers for student use. Students kept their personal belongings in cubbies located on one wall of the room. Materials were easily accessible to students. The room showed evidence of a place for enjoyment and learning. During our interview Anna talked about her ideas of an effective teaching environment,

I believe that the classroom should be a fun and inviting place for students to come. I like having students work in groups and the tables help with that. In our classroom, the students understand that all the materials are available for their use but at the end of the day, everything should be back in its place. Keeping the classroom orderly and insisting that students participate in the care of the classroom helps them take ownership of the learning environment. I work to build spaces for my learners to explore and discover; places where they love to be and don't want to leave. I want my classroom to offer compelling invitations to learn.

Anna taught in a self-contained fourth grade classroom. There were 14 boys and 6 girls for a total of 20 students. There were 13 Caucasian and 3 African-American students. Three students were Hispanic and required English as a Second Language (ESL) services, just as her one Asian student also required ESL services. Six of Anna’s students had IEPs and another was diagnosed ADHD with a 504 plan. The students in this classroom were very transient. Anna began the school term with 23 students, which had dropped at one point in the year to 16 students, and now had 20 students because they continually moved in and out of the school. Table 4 shows the demographic make-up of Anna’s self-contained classroom.

Table 4.

Composition of Anna’s Self-Contained 4th Grade Classroom

Total #	Boys	Girls	Caucasian	African-American	Hispanic	Asian	IEP	ADHD with 504
20	14	6	13	3	3	1	6	1

As students entered the classroom Anna had each one step on a welcome mat divided into four sections. Each section told the teacher how that student wanted to be greeted for the day. One section asked for a handshake, one asked for a high-five, one for a smile, and the last section asked for a simple hello. Anna obliged each student by welcoming him or her in the manner chosen and also with a positive comment such as, “Great to see you today!” Anna explained this practice,

I want students to want to come to school. By greeting them at the door and allowing them choices about how I greet them, I can gage the moods of my students. In addition, if a child is having a bad morning, just the positive contact at the door can help to change the mood.

It was evident that the morning routine was well established as each student arrived. Students entered the room, put away their supplies, turned in their daily folder, and began working on the

morning assignment. Anna recorded the attendance and lunch count and sent it to the office with the student leader for the day. After the morning announcements students began their activities for the day beginning with a reading and language arts block. Anna said, “I work on procedure and routine for the first couple of weeks. I don’t begin actual instruction until students are comfortable with my expectations.”

Anna used a reading and writing workshop format during her daily literacy block. She explained her reasoning during our interview, “I use the workshop approach because I feel that it provides students with a supportive environment that involves them in authentic reading experiences that focus on the individual strengths and needs of students.” She began each day with a mini-lesson focused on a reading strategy. “The mini-lessons are based on student need,” Anna explained, “During the lesson, I model, read, and think aloud using literature, use shared reading, or have students practice a particular skill or strategy.” For example, during my observation week Anna focused on summarizing text. She said that during this mini-lesson, “We create anchor charts that anchor or hold our learning, so that we can refer back to them during our work time.”

Early in the week students chose which books they wanted to read from an approved set of books. Subsequent to the mini-lesson, students worked alone to practice the skill in their reading while Anna met with individual students to confer about their reading and writing. Anna used the conference chart to see who she would meet with for the day and quietly approached each student to have him or her meet her at the table at the back of the room. The student knew to bring all the items required for the conference including a reader’s and writer’s notebook and the book being read. When students sat down for their conference they immediately opened their writer’s notebook and began to edit their work. The students used a red or purple pen to complete

the editing so Anna could see the corrections made in their writing. During this time, Anna read and responded to the letter written to her in the student's reading journal concerning the book being read. She would also "jot down notes in the journal to track student progress or to encourage learners to work on a specific strategy or skill." On average this took 2 to 5 minutes and gave Anna time to browse through the student's school reading log where he or she recorded finished novels. The next few minutes were used for the student to ask questions about their reading and for Anna to listen to the student read orally from the text. In some instances Anna would take a running record and at other times Anna and the student would simply discuss the text.

While Anna was meeting with individual students she combined reading and writing instruction in one conference. After discussing the text, Anna focused on corrections the student had made in his or her writing notebook. She began the writing conference by asking, "How's the writing going?" Students were given the option to read or be read to. Anna and the student would look at one page in detail. As the piece was read Anna would share two things that the student was doing well and one thing to work on. She might ask, "Did you know you were doing this?" for the area of strength and, "Can I show you something good writers do?" for the area to work on. During the conference Anna recorded strengths and challenges for each student in her notebook so she could prepare for the next meeting. During our interview Anna said that during each conference she "selects the most pressing skill missed at the time" and addresses one skill each week. The conferencing time lasted approximately 35 minutes and Anna met with four or five students.

A writing mini-lesson was next on Anna's daily agenda. Anna described the writing portion of the lesson as "our favorite time of day!" During the short session, she modeled

effective writing and focused on a grammar skill such as writing possessives or using quotation marks. Anna said that, “Regardless of the method of presentation, one thing remains constant. After every mini-lesson, writers get to write! Students choose their own topics, making their writing more meaningful. The format includes think time, write time, conferring, editing, publishing, and sharing.” Then students would work independently to practice the skill while Anna had conferences with individual students. Anna met with an additional four to five students during this time. The end of this part of the lesson was devoted to student sharing. Anna explained that, “During our sharing, we often help our classmates edit their work using our document camera. Kids love this. I love the passion that the learners develop for writing.”

The third lesson during the reading block lasted about 20 minutes and was delivered to the whole group. Anna presented a new skill for the week during this lesson. This week’s focus was on reading nonfiction. For example, one day the students were asked to read articles from *TIME for Kids* and use a graphic organizer to record the main ideas and details from the article. Each table of students worked as a team to complete this assignment. It was evident that students were comfortable working in teams. The students took on different roles in each group and demonstrated respect and compromise as they finished the task. Following this activity the students cleaned up and went to a related arts class such as art, music, or physical education.

Anna reflected on her use of the workshop during our interview,

I believe whole-heartedly that my primary responsibility as a teacher is to instill in children a love for learning itself. I want to create lifelong learners who love learning and know the joy of discovery. Using the workshop format allows me to reach these goals.

Once students returned from their related arts classes, Anna used the next hour for science or social studies instruction. On some days only one of the subjects would be taught and on other days the time was divided and both science and social studies activities were completed. Each day a PowerPoint presentation was shown to review the skill being taught and students

would work with a partner to answer standardized test review questions. Anna used TCAP coach books to supplement her textbook and to help students prepare for state tests. On two of the three days students were involved in the creation of landforms using clay. Partners worked together to make two different landforms with clay and then write a brief description for each. On the third day students worked in groups to create a flip book about a state of their choosing. Students were required to research and locate information about the state and take notes about the state's bird, flower, song, natural resources, population, animal, and other interesting facts to include in their flip book. Anna said that a culmination for this activity would be to create a class graph depicting the similarities and differences among the states chosen. Anna explained that, "This time of the day allows the kids to relax a bit and have fun, as they explore a variety of work areas in the room. It gives them a chance to interact and learn with their friends."

After lunch students prepared for the math lesson. Each math lesson began with six review questions on the whiteboard that students worked on independently. Anna moved around the room to help individual students as was necessary. When all the students were finished with the review, the class checked their work together. Anna said, "I like for students to see immediately where they are making mistakes. These opportunities to verbalize their thoughts and strategies give children the chance to clarify their thinking and gain insights from others." Each student had the opportunity to ask questions during the review. After the review Anna transitioned into the main lesson for the day. On one day Anna used PowerPoint, video, and an interactive notebook lesson to introduce solving inequalities. Students worked with individual whiteboards and markers to work problems independently during guided practice. Another day students played games to practice the skill taught the day before. On the final day students worked with a partner to create their own inequalities and solutions. The final 20 minutes of each

lesson was spent in the computer lab with students working on *IXL.com* to practice skills. Each student worked at his or her own pace at the computer and had the opportunity to practice only the skills in which they were struggling. Anna said, “I try to allow students opportunities to work on their own level to allow them to feel successful. The use of technology makes learning more fun and provided motivation for students.”

The last part of each day was used to revisit the literacy block with a fourth mini-lesson on the basal skill for the day. The day ended with a center rotation time while Anna met with small groups of students for additional reteaching and support. The centers included a partner reading station, a computer station, a class assignment center, an SRA reading lab, and the teacher center. At the partner reading station students reread the basal text for fluency while at the computer station students worked on vocabulary using the Houghton Mifflin website. The class assignment center consisted of workbook pages or other teacher created assignments to practice newly taught skills. The SRA reading lab provided students with the opportunity to read passages, answer comprehension questions, and self-check their work. The teacher center was different each day depending on which students needed extra help. Anna described the learning stations as follows.

Learners in our classroom are moving around, learning, and growing during our workstation time. Children participate in work stations each day. During work stations, learners can choose from a variety of fun learning activities. Work stations offer children the opportunity to explore freely from a variety of learning experiences. It also allows them some time to relax and enjoy learning with friends.

When time was over the center activities were put away and students went back to their seat with pencils, folders, and homework. After discussing the centers Anna went over any homework for the day and had students place the required work in their folders. When all students had their belongings organized they retrieved their backpacks and continued to prepare for dismissal. Anna read aloud to the students while waiting for the afternoon announcements.

In this classroom all nine strategies identified by Marzano et al. (2001) as best practices were observed. Students were given choices concerning their behavior, writing topics, and books to read. Anna differentiated her instruction for each child as evidenced in the individual conferences that took place. Individual feedback and recognition were also provided during the conferences. Students were asked to identify similarities and differences, summarize, and take notes as seen in the assignments given. Students were given opportunities to practice skills individually and in groups. Students were encouraged to work together with partners and groups and to offer assistance to peers when needed. They were given a chance to reflect on their mistakes as well as their successes during discussions with the teacher. Students were expected to direct their own learning during the workshop activities and the classroom atmosphere reflected the importance of student work. Anna provided challenges that required thinking, questioning, and problem solving throughout the day. This thinking was regularly mapped using nonlinguistic representations and graphic organizers. Activities were related to the real world and demonstrated that learning went beyond the school walls.

Evidence of student and teacher reflection was abundant in this classroom. “I am always reflecting,” said Anna, “I am continuously evaluating what works and what doesn’t for my students.” Anna’s students were provided with daily opportunities to reflect in writing and in conversation. The reader’s notebook afforded the opportunity for students to record thoughts, feelings, and reflections about what they were reading. The individual conferences also provided time for students to verbalize their thoughts and reflections during discussion with Anna who consistently reviewed her notes taken during conferences to direct her teaching. Anna said that by using journals, her students could use reflection “to help process their learning and take their learning to a new level.”

Cross-Case Comparison

A deeper understanding and recognition of the teaching strategies implemented by Nationally Board Certified teachers and how those strategies compare to the best practices identified by Marzano et al. (2001) was sought through cross-case comparison of data among all cases. Additionally, the broader impact of National Board Certification on the teachers' instructional choices was probed in order to reveal the teachers' perceptions of National Board Certification as a catalyst for change in instructional practice. Subsequent to analysis the themes of reflection and student-centered classrooms emerged across all cases. Cross-case comparison was accomplished using checklists and graphic organizers depicting the themes that emerged from data analysis and data sources.

Best Practices

This section presents the findings of cross-case comparison organized by the nine best practices identified by Marzano et al. (2001). Each practice subheading provides a summary of the findings from all three case studies. The data were gathered through nine observations, three interviews, nine sets of field notes, and three checklists of the best practices. The data were then coded according to the best practices.

Best Practice One: Identifying Similarities and Differences

The first best practice identified by Marzano et al. (2001) is that of identifying similarities and differences. Marzano et al. (2001) state, "Researchers have found these mental operations to be basic to human thought. Indeed, they might be considered the 'core' of all learning" (p. 14). Identifying similarities and differences may take many forms in the classroom. Students may be asked to compare, classify, or create metaphors and analogies.

Evidence of this practice was visible in all three classrooms observed. Cathy had students comparing and contrasting solid figures in math and characters from stories in reading. Students were also asked to categorize phrases as similes or metaphors. Jessica and Anna had students use different graphic organizers to identify similarities and differences. Jessica had students compare animal cells to plant cells while Anna had students compare different states. This information leads to the supposition that these three NBC teachers recognized the importance of recognizing similarities and differences and used this strategy on a regular basis.

Best Practice Two: Summarizing and Note-Taking

Summarizing requires students to analyze information to determine the main ideas in text. Note-taking is closely related to summarizing in that it requires students to determine what is most important and record the information in a succinct form (Marzano et al., 2001).

Indicators of this strategy include writing summaries, filling in summary or story frames, filling in webs or outlines, and using sticky notes during reading.

All three NBC teachers used these strategies in their daily practice, although they were used to different degrees. One teacher stated that by having students summarize information in their journal she was “providing tools for my students to understand the most important aspects of what they are learning.” “Being able write or verbalize information helps students process learning,” said another. Summarizing and note-taking were evident in the daily routines of each NBC teacher studied. However, one teacher was observed using this strategy only in reading when she had students use a graphic organizer to summarize the beginning, middle, and end of a story. The other two teachers implemented summarizing and note-taking in all subject areas. Other ways in which these strategies were incorporated were in taking notes for a research

project, using journals, and creating flip books. The only difference in the use of summarizing and note-taking appeared to be linked to the academic areas in which they were used.

Best Practice Three: Reinforcing Effort and Providing Recognition

The third strategy “does not deal directly with enhancing or engaging the cognitive skills of students. Rather, this set of instructional techniques addresses students’ attitudes and beliefs” (Marzano et al., 2001, pp. 49-50). The strategies of reinforcing effort and providing recognition were evident in all three classrooms. The NBC teachers reinforced effort by giving specific praise and applauding students for trying to complete difficult tasks. Each of the classrooms had established routines for recognizing students ranging from AR reward parties to having a classroom reward system where students received tokens for effort and achievement. These tokens were later used to trade for items in a classroom store. Marzano et al. (2001) suggest, “The harder you try, the more successful you are” (p. 59). Anna stated that she had students set personal goals and followed their progress so that she could “increase motivation, not competition.” It appeared that these teachers created an atmosphere where students were motivated to learn by recognizing student effort and progress.

Best Practice Four: Homework and Practice

Homework and practice provide students the chance to deepen their understanding and skills related to new content (Marzano et al., 2001). Homework and practice are not new ideas in teaching. Each of the three NBC teachers participating in this study provided both guided and independent practice for students. What made the homework and practice assignments appear different in these classrooms was how the teachers used scaffolding in their instruction. Scaffolding instruction is defined as the “role of teachers and others in supporting the learner’s development and providing support structures to get to that next stage or level” (Raymond, 2000,

p. 176). Scaffolds used by teachers are temporary. As student abilities increase the scaffolding provided is progressively withdrawn (Van Der Stuyf, 2002). In these classrooms all students were expected to complete the assignments; however, the teachers provided different types and amounts of assistance to students as they worked. Some groups received extra teacher modeling before working independently while others worked only with peers. Scaffolding was clearly evident in Anna's classroom as she met individually with each student. When students asked for help they received assistance that varied from an indication of where to find the necessary information using classroom resources, to providing the specific resource, to giving the information. The amount of scaffolding provided during student practice time differed with each child or small group of children according to the students' academic ability level.

Best Practice Five: Nonlinguistic Representations

The fifth best practice identified by Marzano et al. (2001) was that of nonlinguistic representations. According to these authors nonlinguistic representations are the "imagery mode of representation" (p. 73). Nonlinguistic representations may take the form of students creating graphic organizers, making physical models, generating mental pictures, drawing pictures and pictographs, or engaging in kinesthetic activity.

The strategy of using nonlinguistic representations was observed in all three classrooms. All of the NBC teachers in this study used graphic organizers almost daily. Cathy had students create a chart of platonic solids with sketches, Jessica had students use graphic organizers to complete summaries, and Anna allowed students to complete a web organizer to take notes for their social studies projects. Students in Anna's class also created physical models of landforms in science. By examining artifacts such as lesson plans and previous student work, I found further evidence of nonlinguistic representations being implemented. Students had created

pictures to define vocabulary words, made models of platonic solids using straws, and completed various graphic organizers including Venn diagrams, webs, story maps, and timelines. The lesson plans of one teacher indicated that students would soon be taught movements to help them remember the order of operations in math. Anna acknowledged,

The more senses I can stimulate during instruction, the more students remember information. I use pictures, webs, models, and movement so that I can hit the learning style of each student. Having them come up with their own representation of the learning either by drawing or creating a graphic organizer makes the content more meaningful to them.

Observation of these three NBC teachers clearly indicated that they valued the use of nonlinguistic representations in their teaching.

Best Practice Six: Cooperative Learning

Probably the most widely used strategy observed in the classrooms of the NBC teachers in this study was the use of cooperative learning. Marzano et al. (2001) suggest that teachers clarify between cooperative groups and grouping in general. Marzano et al. (2001) refer to the research of Johnson and Johnson that cooperative learning involves five defining elements. These include positive interdependence, face-to-face promotive interaction, individual and group accountability, interpersonal and small group skills, and group processing (Marzano et al., 2001). Zemelman et al. (2005) suggest that collaborative instruction allows learning from one another including group problem-solving and discussions.

The room arrangement in each of the observed classrooms indicated that group work was valued. All three classrooms were furnished with tables instead of desks for student use. Cathy stated that the use of tables “reinforces teamwork” among students. Jessica said that tables supplied a “real world setting” where students could work together. Anna suggested that the use of tables made it easier for students to talk with each other about their learning. She said,

“Children need to talk about what they are learning in order to internalize it.” Cathy also pointed out that she encouraged class discussion to “develop a sense of community between the groups instead of competition between individuals.”

Classroom practices in each of the rooms showed support for cooperative learning. Students worked together to complete projects and helped each another during math groups. Students were encouraged to learn from each other when Jessica prompted, “Talk to the people at your table. They may help you.” Cathy encouraged her students to work cooperatively as she provided positive feedback. She said, “I like how you are working it out together.” Anna stated that she uses more cooperative learning since going through the National Board Certification process. She said that she became aware that, “Children learn a lot from each other, sometimes more than they could learn from me. I now provide more time for group discussion and time to work together and just talk.” It was apparent that cooperative learning was an important component in the three classrooms observed.

Best Practice Seven: Setting Objectives and Providing Feedback

Marzano et al. (2001) define goal setting as the process of establishing a direction for learning. Visual confirmation of goal setting was seen in each of the NBC teachers’ classrooms. Daily objectives were posted at the front of the room in all classes studied. Cathy had also posted long-term goals at the back of her classroom. The focus skill of the day was verbalized at the beginning of each lesson in two of the three classrooms. In one classroom all objectives for the day were discussed during the morning routine. Students had the opportunity to record daily objectives in a planner or notebook every day. Each of the three teachers said goal setting was important. Cathy explained why she focused on goal setting with her students.

Students take more responsibility for their own learning by setting goals for themselves. My students check their own homework and review assignments. This allows them to see where they are and to set a goal for how much they want to improve. For example, one may miss five problems on an assignment and set a goal to only miss two problems next time. This puts the ball in their court. What do they need to do to reach that goal and how can I help them?

Marzano et al. (2001) described feedback as “one of the most generalizable strategies a teacher can use” (p. 96). According to their research, feedback should be corrective in nature, timely, and specific (Marzano et al., 2001). Hattie (2009) purported that feedback could be considered the “most powerful single modification that enhances achievement” (p. 9). Feedback should be specific and highlight the skills mastered and skills that need improvement. It is more than just providing a percentage score with no explanation as to how the score was earned.

The NBC teachers in this study implemented effective feedback in their classrooms. Cathy gave regular feedback as she made her way around the classroom providing comments such as, “You’re on the right track” and “You might try it this way.” Jessica allowed her students to provide feedback to peers by having them work together to correct mistakes. She also used specific feedback during group work by saying things like, “Thank you table three for following directions” and “There is something you need to fix. Can you look at what is on the board then look at yours and tell me what it is?” In each case, students knew specifically what they were doing right and what needed work. Anna used immediate feedback during the individual reading and writing conferences held throughout the day. She said that she felt the one-on-one feedback was much more powerful than a grade on a report card. Anna said, “Students don’t understand number grades. They want to know specifically what they did right.” Cathy added, “Without an explanation of what students are doing wrong, grades mean nothing.” This information led to the conclusion that these NBC teachers recognized the need for specific and positive feedback to increase student achievement.

Best Practice Eight: Generating and Testing Hypothesis

Generating and testing hypotheses involves students applying knowledge in a new situation (Marzano et al., 2001). In the classroom this may involve systems analysis, problem solving, historical investigation, invention, experimental inquiry, and decision making (Marzano et al., 2001). None of the three teachers mentioned generating and testing hypothesis by name during the interview. However, one teacher alluded to this strategy when she referred to “trying to make my students independent thinkers.” She also stated that she attempts to get her students to think by asking questions such as, “How did you get there? How did you get that answer?”

Although there was a lack of reference to this practice in the discussions, each of these teachers used generating and testing hypothesis as a teaching strategy during observation. All three teachers addressed higher order thinking skills through numerous activities including problem solving, comparing stories, making and correcting predictions, and analyzing information. Each teacher required her students to explain their thinking when answering questions orally. Probing questions were asked such as, “What do you think might happen if...?” “How did you determine your answer?” and “Is there another way that we could solve this problem?” Students were encouraged to “use your brains” in one classroom, and to “visualize the answer” in another. Even though they may not have recognized the strategy by name, generating and testing hypothesis was being used in all of these NBC teacher’s classrooms.

Best Practice Nine: Questions, Cues, and Advance Organizers

Marzano et al. (2001) define cues and questions as “ways that a classroom teacher helps students use what they already know about a topic” (p. 112). Practicing teachers may call it activating prior knowledge. Cathy and Jessica both activated prior knowledge during their teaching by referring to a previous skill that had been taught. They also used KWL charts to

elicit prior knowledge about a topic. Anna used the technique of brainstorming to find out what her students already knew about a topic. During our interviews all three teachers discussed developing questions based on Bloom's New Taxonomy and Webb's Depth of Knowledge. One teacher said she was "being a facilitator of information. I always like to ask questions and pull the information out of them."

Advance organizers are another way to activate prior knowledge (Marzano et al., 2001). Teachers may refer to an advance organizer as a way of preteaching content. According to Marzano et al. (2001) there are four general types of advance organizers: expository, narrative, skimming, and graphic advance organizers. Two of these advance organizers were observed in one classroom. Cathy used a personal story about growing up and having to change schools to introduce her students to a reading passage about the new kid in school. This prompted a discussion about what the students knew about changing schools and about how they would feel if they were the new kid in their class. Cathy instructed her students to skim a social studies passage to become familiar with new vocabulary. Jessica used the strategy of skimming in a science lesson on animal and plant cells when she had the students compare the labeled diagrams in the passage to see what might be different between the two. It was observed that two of the three NBC teachers used advanced organizers regularly in their classrooms.

Emergent Themes

Data analysis revealed the themes of reflection and student-centered classrooms across all cases. The cross-case comparison was accomplished using checklists and graphic organizers depicting the themes that emerged from data analysis and data sources. This section presents the findings of cross-case comparison organized by the emergent themes. Each theme subheading provides a summary of the findings from all three case studies. The data were gathered through

nine observations, three interviews, nine sets of field notes, and three checklists of the best practices. The data were then coded according to the themes.

Emergent Theme One: Reflection

The three participating NBC teachers collectively related the impact of National Board Certification on the quality of their teaching and mentioned an increase in reflective practice.

Cathy said,

I think I am always reflecting. Sometimes, the reflection comes at the end of the day when I am thinking about how each lesson of the day went. More often, it is occurring during a lesson as I watch student understanding unfold. After each lesson, I am usually always reflecting on how it could have been done better.

Jessica stated, “To me, reflection means continually thinking about the impact of what you are doing on student learning.” Anna concurred by saying, “The National Board Process required me to consider and reflect on the impact that everything I do has on student learning. This covers everything from a detailed lesson to a phone call with a parent.”

According to Reeves (2004) during reflective practice teachers think about what they are doing and evaluate the effectiveness of their actions as they monitor and adjust instruction based on experiences. Each participant in this study articulated a strong belief regarding reflection that was developed through the National Board Certification process.

Emergent Theme Two: Student-Centered Instruction

Zemelman et al. (2005) suggested that student-centered instruction builds on a student’s natural curiosity and allows the student to investigate his or her own interests in an atmosphere that balances teacher-led experiences and student-led experiences. Each of the three NBC teachers who participated in this study emphasized the importance of the child in her classroom. It was apparent that student needs were the central focus for determining the method of

instruction. When asked what guided instruction the most, Cathy said that her instruction was based on the students, their learning styles, personalities, interests, and ability levels. She said, “I really try, hope, and believe that they [the students] are the center of my teaching.” Jessica answered emphatically, “The students. The process of NBC has definitely made me more focused on matching student-centered activities to the required skills/benchmarks.” And Anna added, “I meet students where they are and do what is necessary to get them where they need to be.” All agreed that students learn at different levels. Anna stated, “Instruction is not one-size-fits-all. My students may go at different speeds, but I can take them a little further in their educational journey.”

The classroom practices of all three NBC teachers demonstrated student-centered instruction on a daily basis. This was most apparent by the amount of student choice offered. Students in Cathy’s room could choose what and where to read during independent reading time, Jessica’s students had a choice of research topic, and Anna’s students daily chose what book they would use to practice the skill being taught. Other indicators included students writing on a topic of choice, choosing which assignment to complete first from a to-do list, choosing activities during open center time, and choosing a topic for journal writing. All students were required to complete assignments, but in one classroom students could choose any method to complete it as long as the final product met the expectations. All three teachers used movement, music, and stretching activities to calm students and give them a break. Student-centered instruction was a prominent theme that emerged from this study.

Additional Findings

Students in the three NBC teachers’ classrooms were involved in bell-to-bell learning. Transitions from activity to activity went smoothly and with little teacher guidance after

directions had been given. This seemed to be a result of excellent classroom management. The students in these classes were well behaved and routines and procedures were well established. This allowed students to work more efficiently and required less teacher input into how to complete assignments and what to do when finished with assignments. Each NBC teacher expressed that the first few weeks of school were devoted almost entirely to rules, routines, and procedures. Cathy said that she started on day one and “specifically taught expectations” and she made sure that students understood that, “The responsibility for their behavior is on them.” Jessica said that at the beginning of the year she spent “2 to 3 weeks going over and modeling expectations, and then the students practice the procedures until there is no question as to how things are done.” Anna described an entire unit she taught the first 2 weeks of school consisting of, “How [the] reading and writing workshop is conducted and my expectations for student behavior.” It was apparent that effective classroom management was in place in all three classrooms in this study.

Conclusion

Chapter 4 began with a description of the sample, data collection methods, and the process used for data analysis. Also included in Chapter 4 was descriptive data of each of the three cases followed by a within case summary of each. The chapter ended with a cross-case comparison of the data organized by the nine best practices identified by Marzano et al. (2001) and the emergent themes of reflection and student-centered instruction. Conclusions based on the data analysis are discussed in Chapter 5 along with implications for practice and recommendations for future study.

CHAPTER 5

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

This multi-site case study examined the teaching practices of Nationally Board Certified teachers. The data gathered were used to answer two research questions. A summary of the findings and conclusions based on data analysis are discussed in this chapter along with the implications and recommendations for further study.

Several characteristics imperative to qualitative research applied to this study. These included the holistic nature of qualitative inquiry, the natural setting in which observations occurred, and the small population for study available in contrast to the larger number of participants necessary for statistical significance in quantitative research (Merriam, 1988). I determined that a qualitative, multi-site case study presented the best chance for participants to share their teaching strategies and perceptions regarding the impact of the National Board Certification process on instructional choices. Through this study a deeper insight into the impact of National Board Certification on teaching practices has been gained for the participants.

Summary of Findings

This study used case studies as a qualitative method to gather data. Three Nationally Board Certified teachers were purposefully chosen, observed, and interviewed. The observations and interviews were structured to determine how a set of identified best practices were incorporated into each classroom. The data gathered were used to answer two research questions:

1. What instructional strategies do Nationally Board Certified teachers most often implement and which of those strategies are categorized as best practice?

2. How does the National Board Certification process impact instructional choices as reported by Nationally Board Certified (NBC) teachers?

Research Question 1

What instructional strategies do Nationally Board Certified teachers most often implement and which of those strategies are categorized as best practice?

The first research question was used to examine the teaching strategies implemented in the classrooms of Nationally Board Certified teachers. Data sources for this question consisted of observations, interviews, and checklists.

During observation I recorded several teaching strategies being implemented in the classroom. All three participants showed evidence of using six of the nine practices identified by Marzano et al. (2001), including: (#1) identifying similarities and differences, (#3) reinforcing effort and providing recognition, (#4) homework and practice, (#5) nonlinguistic representations, (#6) cooperative learning, and (#7) setting objectives and providing feedback. All participating teachers used the (#9) questions and cues strategy, but only two of the three NBC teachers regularly used the (#9) advance organizers. Two of the teachers used strategy (#2) summarizing and note-taking in all subject areas, whereas one teacher used it only while teaching reading. I observed that all three classrooms were student-centered and that reflective practices were in place; the participating teachers did not regularly use strategy (#8) generating and testing hypothesis.

Data on the use of each of the nine best practices identified by Marzano et al. (2001) were gathered and reviewed to determine how they were used in the three participating teachers' classrooms. All nine of the best practices were observed in the three classrooms, although to different degrees. Three categories were developed to label the degree of implementation of the

nine classroom practices in the observations. The categories were (a) strong evidence, (b) evidence, and (c) marginal evidence. Strong evidence (a) consisted of the practice being observed all 3 days. Evidence (b) required that the practice was observed 2 of the 3 days, and marginal evidence (c) indicated that the practice was observed during only 1 day. Table 5 presents a matrix of how the individual teachers compared on the nine best practices and two emergent themes. The data show that Nationally Board Certified teachers used most of the research-based best practices in their classrooms on a consistent basis. The findings indicate that these three NBC teachers understand research and put it into practice in their teaching.

Table 5.

Best Practices and Emergent Themes Matrix (based on Marzano et al., 2001)

Best Practices	NBC Teacher 1	NBC Teacher 2	NBC Teacher 3		
1) Identifying Similarities and Differences	XXX	XXX	XXX		
2) Summarizing and Note-Taking	XX	x	XXX		
3) Reinforcing Effort and Providing Recognition	XXX	XXX	XXX		
4) Homework and Practice	XXX	XXX	XXX		
5) Nonlinguistic Representations	XXX	XXX	XXX		
6) Cooperative Learning	XXX	XXX	XXX		
7) Setting Objectives and Providing Feedback	XXX	XXX	XX		
8) Generating and Testing Hypothesis	XX	XX	x		
9) Questions, Cues, and Advance Organizers	XX	XX	XXX		
Emergent Themes	NBC Teacher 1	NBC Teacher 2	NBC Teacher 3		
1) Reflection	XXX	XXX	XXX		
2) Student Centered Instruction	XXX	XXX	XXX		
x	Marginal evidence	XX	Evidence	XXX	Consistent evidence

Research Question 2

How does the National Board Certification process impact instructional choices as reported by Nationally Board Certified (NBC) teachers?

The second research question asked participants to describe the impact that the National Board Certification process has had on their instructional choices. All three said that the National Board Certification process had a major impact on their teaching by making them more reflective. Cathy stated, "I am not the teacher I used to be. The NBC process really made me stop to think about the impact that I have on student achievement." Jessica said, "I think I reflect more now than I used to. I can tell which lessons are working and which ones are not and I can adjust my teaching." Anna emphasized that reflection helped her "reexamine my teaching strategies and develop better lessons that will better meet the needs of my students." All participants related that the National Board Certification process made them think more and deeper than before.

All three teachers affirmed that their instructional practices had changed as a result of the National Board Certification process. However, the changes came in different areas for each teacher. Cathy asserted that,

Before I completed the NBC process, I taught my lessons to the whole group. During this process, I was required to teach and record lessons in small groups. I saw that using small groups helped to improve student understanding and gave them ownership of their learning. This was a strategy that I began to use and have built upon since then. Now, the majority of my lessons are taught this way.

For Jessica the change came in planning her lessons. She declared, "The NBC process made me focus more on standards and plan instruction that was relevant and not the cutesy stuff I wanted to do." She went on to say, "It forced me to collaborate more with others and plan together as a team."

Anna also found herself focused more on the students. She said, “My teaching is now much more student-centered and I focus more on individual student needs rather than whole group instruction so that all students can succeed and meet the required state standards.” While the changes to instructional practices varied among the individuals, it is evident that these participants believed that the National Board Certification process had a positive impact on their teaching. Perhaps, these changes are instrumental in becoming an effective teacher.

Conclusions

Findings from this research study support three conclusions:

1. The participating Nationally Board Certified teachers use research-based best practices regularly in their classrooms.
2. The National Board Certification process has a positive impact on instructional practices in the classroom for the participants.
3. The National Board Certification process made a difference in the reflective practices of the participating teachers in this research study.

Extensive research has been done on instructional practices that improve student achievement (Berends, 2004; Marzano et al., 2001; Walberg & Paik, 2004; Zemelman et al., 2005). Some research has shown that NBC teachers are well-trained and that their use of research-based practices increases the quality of learning for children (Berg, 2003). Marzano et al. (2001) examined decades of research and identified a list of nine best classroom practices. This study found that teachers who hold National Board Certification consistently use the nine best practices recognized by Marzano et al. (2001). These findings confirm what is found in the literature concerning NBC teachers and the use of best practices.

Lustick and Sykes (2006) suggest that, “Board certification may positively impact the quality of instruction and students’ learning experiences.” Other research shows a relationship between National Board Certification status and student achievement (Cavalluzzo, 2004; Goldhaber & Anthony, 2007; Smith et al., 2005; Vandevort et al., 2004). In this study participants said their instructional practices had changed as a result of the National Board Certification process, which supports the research that pursuing National Board Certification is a worthwhile professional development opportunity.

Clehouse (2000) reported that NBC teachers said they were more reflective following the National Board Certification process and they incorporated more reflective activities and critical thinking into their classroom practices after completing the National Board Certification process. The fourth proposition of the NBPTS states, “Teachers think systematically about their practice and learn from experience” (NBPTS, 2012b). The wording of this proposition implies a focus on reflection. This study found convincing evidence that the fourth proposition had positively influenced the three participating NBC teachers. Comments by NBC teachers support this finding, “The NBC process made me think more and deeper,” “National Board was an eye-opener that caused me to be more reflective. It helped identify the weak areas in my instruction,” and “I think that I might reflect more or think more after going through this process.” I conclude that the National Board Certification process made a difference in the reflective practices of the participating teachers.

The purpose of this study was to explore the everyday instructional practices of Nationally Board Certified (NBC) teachers who teach grades four and five in east Tennessee. The observations provided a glimpse into the daily instructional practices of NBC teachers practicing in east Tennessee and their thoughts pertaining to the impact of the National Board

Certification process on their instructional choices. Findings of this study suggest that these NBC teachers consistently use research-based best practices in their classrooms. In addition, the themes of reflection and student-centered instruction emerged from the data analysis. Participants in this study described the positive impact that the National Board Certification process had on their teaching practices.

The National Board Certification process is a powerful professional development opportunity providing a path toward professional growth and development (NBPTS, 2011). One Nationally Board Certified teacher in this study commented, “My experiences going through the National Board Certification process have shaped my teaching more than anything else.” Another stated, “I learned about building a classroom community and that helped me to become more student-centered in my classroom.” The third teacher said, “I focus more on the students and what their strengths are and then I build on those strengths.”

All of the participating teachers in this study described what they had learned by completing the National Board Certification process and how that knowledge had changed their teaching for the better. One teacher stated that she would recommend the National Board Certification process for any teacher wanting to become more effective in the classroom. She said, “This was by far the most useful and practical professional development I have ever done. It really makes you look at yourself and your teaching and how you are impacting student achievement.” It appears that the National Board Certification process is just what it claims to be; a way to advance the quality of teaching and learning.

Implications for Practice

Public school teachers across the country are required to participate in professional development opportunities. The National Board Certification process is proposed as an activity

for professional development for teachers. This study found that for three teachers in east Tennessee it was an effective means for professional growth and development.

School districts need information on the National Board Certification process and the embedded best practices found in each standard. Once awareness of the benefit of the National Board Certification process is established, school systems can proceed with plans to encourage teachers to pursue this certification. A professional development program based on the best practices of the NBPTS standards may offer teachers the opportunity to become familiar with the best practices to use in their classroom and would support the development of more effective teachers. This may only occur if administrative teams agree to supply the time and money needed for teachers to make these practices a fundamental component of their teaching.

One NBC teacher in this study was working in another state at the time of her certification. She stated that she pursued certification because of the monetary incentives provided by that state. After moving to Tennessee she is no longer compensated by the state for her certification. Incentives and supports for National Board Certification vary among states (NBPTS, 2011). If incentives are used to encourage more teachers to meet the high and rigorous standards of the NBPTS, it is recommended that all states provide these incentives for NBC teachers and recognize their achievement.

Recommendations for Further Research

This study described the instructional practices of a group of NBC teachers in east Tennessee. It builds on the work of Marzano et al. (2001) who identify nine best practices in teaching. Based upon the findings of this study, further research is recommended in the following areas:

- A similar study should be conducted to target NBC teachers in other locations throughout the United States and at different grade levels. This study was confined to counties in east Tennessee and to grades four and five.
- Future research should be designed to examine the impact that NBC teachers make in helping other teachers develop effective instructional practices. For example, how effective are NBC teachers in mentoring new teachers.
- This research did not include a measure of student achievement. Tennessee has increasing data on teacher effect and this is an area for further research.
- With a growing emphasis on teacher accountability, the teacher education programs and evaluation models should consider incorporating the practices and standards offered by the NBPTS. It is recommended that further study into teacher education programs and evaluation models be done to determine alignment with NBPTS.
- Research should be conducted to Compare NBC teachers with non NBC teachers to see if any differences can be attributed to the National Board Certification process.

Final Discussion

National Board Certification is one way that teachers may improve their instructional practices. This study described the everyday instructional practices of three NBC teachers. The results reveal that best practices are being implemented by these NBC teachers. The participating NBC teachers' practices in this study support the results of previous research and demonstrate highly effective instructional practices in the classroom. Thus, the expertise that the participating NBC teachers have should be used to help other teachers implement best practices in education.

With teachers continuing to seek professional development opportunities, there is more that needs to be learned about the impact the National Board Certification process has on teaching. Professional development is an important factor in effective teaching. Effective teaching is the key to helping students reach their full potential. Thus, National Board Certification is the bridge that connects professional development with student achievement.

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APPENDICES

APPENDIX A

A Comparison of *A Nation at Risk* and *The Perspectives on Education in America*

A Nation at Risk (1983)

What the report claimed:

- American students are never first and frequently last academically compared to students in other industrialized nations.
 - American student achievement declined dramatically after Russia launched *Sputnik*, and hit bottom in the early 1980s.
 - SAT scores fell markedly between 1960 and 1980.
 - Student achievement levels in science were declining steadily.
 - Business and the military were spending millions on remedial education for new hires and recruits.
-

Perspectives on Education in America (1990)

What was actually happening:

- Between 1975 and 1988, average SAT scores went up or held steady for every student subgroup.
 - Between 1977 and 1988, math proficiency among seventeen-year-olds improved slightly for whites, notably for minorities.
 - Between 1971 and 1988, reading skills among all student subgroups held steady or improved.
 - Between 1977 and 1988, in science, the number of seventeen-year-olds at or above basic competency levels stayed the same or improved slightly.
 - Between 1970 and 1988, the number of twenty-two-year-old Americans with bachelor degrees increased every year; the United States led all developed nations in 1988. (Ansary, 2007, *What's Next?*, para. 5-6)
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Source: Ansary, T. (2007). *Education at risk: Fallout from a flawed report*. Retrieved from Edutopia www.edutopia.org/landmark-education-report-nation-risk

APPENDIX B

Comparison of Practices

Best Classroom Practices*	Practices found in the Middle Childhood Generalist Standards of NBPTS	Corresponding Standard
Identifying similarities and differences	Acknowledge and make use of student differences	I
	Capitalize similarities	
	Consider similarities/differences in culture	I
	Enrich understanding and problem-solving	IV
	Use complex/challenging strategies	VI
Summarizing and note-taking	Construct new knowledge	IV
	Provide materials such as maps, timelines,	IV
	Teach communication as essential skill	
Reinforcing effort and providing recognition	Teach process/problem solving techniques	VI
	Guide student learning	VI
	High expectations	IV
	Practice effective communication	II
Homework and practice	Challenge to advance	II
	Collaborate with families	IX
	Create tasks/problems that extend students' abilities	VI
	Interact with families	IX
Nonlinguistic representations	Practice skills	I
	Provide opportunities for creative expression	I
	Variety of opportunities to use oral/written expression	IV
	Create engaging learning environment	IV
Cooperative learning	Encourage interactions	I
	Encourage small groups	VII
	Opportunities for movement	IV
	Opportunities for flexible grouping	VII
	Social cooperation	VI
Setting objectives and providing feedback	Guide student learning	VI
	Knowledge of student	I
	Practice effective communication	IV
Generating and testing hypothesis	Guided discovery	I
	Understand importance of exploration, investigation, inquiry	V
	Creating challenging learning experience	IV
Questions, cues, and advance organizers	Develop problem-solving abilities	VI
	Encourage conceptual development,	VI
	Foster inquiry	VI
	Guided discovery	I
	Promote thinking	VI

Best Classroom Practices* as identified by Marzano et al. (2001)

APPENDIX C

Participation Request

East Tennessee State University
807 University Parkway
Box 70267
Johnson City, TN 37614-1700

Phone: 423-839-7803
Email: amyhall06@gmail.com

November 12, 2011

Dear Fourth or Fifth Grade Teacher,

Hello. My name is Amy Hall and I am a doctoral student at East Tennessee State University. I am conducting a research study on the best classroom practices of Nationally Board Certified Teachers in Upper East Tennessee. In order to accomplish this project, I need the assistance of NBC teachers in grades four and five. If you are not working at this teaching level at this time, please forward this letter to a colleague who meets these criteria.

Participation in this study would involve my observing your classroom for a period of three consecutive days. During these observations, I would be noting the multiple classroom strategies taking place in your classroom. After the observations, I would also like to schedule an interview for review of the field notes taken and clarification. Names will not be used in the note-taking or the final reports and all mention of the classrooms and teachers will be coded to ensure anonymity.

Participation is voluntary. If you choose to participate in this project, please fill out the enclosed form and return to me. Your name will be placed on a list of willing participants. Not everyone who gives consent for participation will be included in this study. Names will be drawn randomly from those who return the forms. You will be notified as soon as is possible to alert you to your status as a participant.

Be assured that no observations will occur without the permission of the teacher involved, the school administration, and the county administration.

Results of this study will be made available to participating teachers upon completion.

If you have any questions concerning this research study, please contact me. Thank you in advance for your willingness to participate in this study. I appreciate your time and hope to hear from you soon.

Sincerely,

Amy W. Hall

APPENDIX D

IRB Consent Information

PRINCIPAL INVESTIGATOR: Amy Hall

TITLE OF PROJECT: National Board Certification: The Impact on Teaching Practices of Elementary Teachers

**EAST TENNESSEE STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
INFORMED CONSENT DOCUMENT (ICD)**

This Informed Consent will explain about being a participant in a research study. It is important that you read this material carefully and then decide if you wish to be a volunteer.

PURPOSE:

The purpose of this research study is explore the everyday instructional practices of NBC teachers who teach grades four and five in east Tennessee. In order to investigate the instructional practices of National Board Certified teachers and the potential impact on student learning, the following questions will be considered:

1. What instructional strategies do National Board Certified teachers most often implement to teach literacy and which of those strategies are categorized as best practice?
2. How does the National Board certification process impact instructional choices as reported by NBC teachers?

DURATION

This study is a multi-site, qualitative study that will include classroom observations, semi-structured interviews, and checklists to conduct descriptive and evaluative case studies involving five National Board Certified teachers who teach in counties located in east Tennessee. The researcher will spend three consecutive days with each participant in the classroom.

POSSIBLE RISKS/DISCOMFORTS

The possible risks and/or discomforts of your involvement include:

National Board Certified teachers are often viewed as master teachers. Possible identification of the participants will be a minimal risk because they have already been identified as NBC. The information obtained concerning best practices will likely be beneficial to a large number of teachers. Results will add to the body of knowledge about the teaching strategies of NBC teachers.

POSSIBLE BENEFITS


APPROVED
By the ETSU IRB

DOCUMENT VERSION EXPIRES

APR 09 2012

APR 08 2013

Ver. 03/01/12

By 
Chair/IRB Coordinator

Page 1 of 3

ETSU IRB

Subject Initials _____

PRINCIPAL INVESTIGATOR: Amy Hall

TITLE OF PROJECT: National Board Certification: The Impact on Teaching Practices of Elementary Teachers

The possible benefits of your participation are:

This study provides information about the instructional practices of National Board Certified teachers. It also illustrates the ways in which NBC prompts student learning in the classroom. The findings will provide information to teachers, administrators, and other educational stakeholders of the best practices that National Board

FINANCIAL COSTS

There are no financial costs to participants.

COMPENSATION IN THE FORM OF PAYMENTS TO RESEARCH PARTICIPANTS

Participants will not be compensated.

VOLUNTARY PARTICIPATION

Participation in this research study is voluntary. You may refuse to participate. You can quit at any time. If you quit or refuse to participate, the benefits or treatment to which you are otherwise entitled will not be affected. You may quit by calling Amy Hall, whose phone number is 423-839-7803. You will be told immediately if any of the results of the study should reasonably be expected to make you change your mind about staying in the study.

CONTACT FOR QUESTIONS

If you have any questions, problems or research-related medical problems at any time, you may call Amy Hall at 423-839-7803, or Dr. Virginia Foley at 423-439-7615. You may call the Chairman of the Institutional Review Board at 423/439-6054 for any questions you may have about your rights as a research subject. If you have any questions or concerns about the research and want to talk to someone independent of the research team or you can't reach the study staff, you may call an IRB Coordinator at 423/439-6055 or 423/439/6002.

CONFIDENTIALITY

Every attempt will be made to see that your study results are kept confidential. A copy of the records from this study will be stored in the home of Amy Hall at 4418 Brockland Drive, Morristown, TN for at least 5 years after the end of this research. The results of this study may be published and/or presented at meetings without naming you as a subject. Although your rights and privacy will be maintained, the Secretary of the Department of Health and Human Services, the ETSU IRB, and personnel particular to this research in the ETSU Department of Educational Leadership and Policy Analysis have access to the study records. Your records will be kept completely confidential

APPROVED
By the ETSU IRB

DOCUMENT VERSION EXPIRES

Ver. 03/01/12

APR 09 2012
By *[Signature]*
Chair/IRB Coordinator

Page 2 of 3 APR 08 2013 Subject Initials _____

ETSU IRB

PRINCIPAL INVESTIGATOR: Amy Hall

TITLE OF PROJECT: National Board Certification: The Impact on Teaching Practices of Elementary Teachers

according to current legal requirements. They will not be revealed unless required by law, or as noted above.

By signing below, you confirm that you have read or had this document read to you. You will be given a signed copy of this informed consent document. You have been given the chance to ask questions and to discuss your participation with the investigator. You freely and voluntarily choose to be in this research project.

SIGNATURE OF PARTICIPANT	DATE
PRINTED NAME OF PARTICIPANT	DATE
SIGNATURE OF INVESTIGATOR	DATE

Ver. 03/01/12

APPROVED
By the ETSU IRB

APR 09 2012

By 
Chair/IRB Coordinator

DOCUMENT VERSION EXPIRES

APR 08 2013

ETSU IRB

Page 3 of 3

Subject Initials _____

APPENDIX E

Consent for Participation

Consent for Participation

I agree to participate in the research study conducted by Amy Hall.

Name: _____

School: _____

County: _____

Address: _____

Grade Level: _____

Year of National Board Certification: _____

Degree Level: _____

Years of Experience:

At this Level: _____

Overall: _____

Signature: _____

APPENDIX F

Request for Director Permission

East Tennessee State University
807 University Parkway
Box 70267
Johnson City, TN 37614-1700

Phone: 423-839-7803
Email: amyhall06@gmail.com

November 12, 2011

Dear (Director),

This letter is a follow-up to our phone conversation held on Sept. N, 2011 concerning observations of teachers in your school district. My name is Amy Hall and I am a doctoral student at East Tennessee State University. I am conducting a research study on the best classroom practices of Nationally Board Certified Teachers in Upper East Tennessee. To accomplish this goal, I need to observe teachers in their classroom settings. Mrs. X, fourth grade teacher at Y Elementary School, has agreed to participate in this study.

The observations will be done during a consecutive three day period with an interview to follow at a time mutually agreed upon. The observations will be unobtrusive and will involve my being present in the classroom and taking notes on the strategies implemented by the teacher. No names will be used in the field notes or the final report. Absolutely no students will be contacted at any time.

This letter confirms our conversation and your agreement to allow observations to take place pending approval of the school principal.

Results of this project will be made available to participating teachers and to you. If you have any questions or concerns about this study, please contact me at the above number or email. Thank you for your cooperation in this matter.

Sincerely,

Amy W. Hall

APPENDIX G

Request for Principal Permission

East Tennessee State University
807 University Parkway
Box 70267
Johnson City, TN 37614-1700

Phone: 423-839-7803
Email: amyhall06@gmail.com

September 8, 2011

Dear (Principal),

This letter is a follow-up to our phone conversation held on Sept. N, 2011 concerning observations of Mrs. X, fourth grade teacher at Y Elementary. My name is Amy Hall and I am a doctoral student at East Tennessee State University. I am conducting a research study on the best classroom practices of Nationally Board Certified Teachers in Upper East Tennessee. To accomplish this goal, I need to observe teachers in their classroom settings. Mrs. X has agreed to participate in this study.

The observations will be done during a consecutive three day period with an interview to follow at a time mutually agreed upon. The observations will be unobtrusive and will involve my being present in the classroom and taking notes on the strategies implemented by the teacher. No names will be used in the field notes or the final report. Absolutely no students will be contacted at any time.

This letter confirms our conversation and your agreement to allow these observations to take place.

Results of this project will be made available to participating teachers and to you. If you have any questions or concerns about this study, please contact me at the above number or email. Thank you for your cooperation in this matter.

Sincerely,

Amy W. Hall

APPENDIX H

Thank You for Participation

East Tennessee State University
807 University Parkway
Box 70267
Johnson City, TN 37614-1700

Phone: 423-839-7803
Email: amyhall06@gmail.com

September 8, 2011

Dear (Teacher),

Thank you for agreeing to participate in the research study on best classroom practices of Nationally Board Certified Teachers. Your name was not chosen during the random selection process. However, if you would be interested in reading the final results of this study, I will be happy to send them to you. Please email me notifying me of your interest and I will send the results upon completion.

Again, thank you for your willingness to participate and all you are doing for our children in East Tennessee.

Sincerely,

Amy W. Hall

APPENDIX I

Checklist

Prior to Lesson

- Prepare a list of questions to help students identify prior to knowledge.
- Prepare logical connections between new content and old content.
- Provide procedure for organizing new content or thinking about new content.

Goals

- Establish and identify clear teaming goals. Post standard, benchmark, and indicator.
- Have students establish self-learning goals.

Class Design

- Establish individual work based on student ability.
- Establish cooperative groups.
- Establish grouping design for lesson
 - Ability groups
 - Interest groups
 - Creative groups
- Ask students to revise their mental images.
- Assign homework
 - Develop homework and in-class activities requiring students to practice and process new skills.
 - Assign homework and in-class activities that assist students in comparing content with previous knowledge.

During and After Lesson

- Develop note-taking procedure. Several types may be presented.
- Have students verbally summarize content.
- Have students summarize content through written expression. (Some students may not be able to do a complete summary but only write a word summary or sentence summary.)
- Have students “represent the content as pictures, pictographs, symbols, graphic representations, physical models, or dramatic enactments.”
- Have students use their visual memory to create mental images for content learned.

Lesson Review, Practice, and Content Application

- Have students revise notes, correct errors, expand information, add details, etc.
- Ask students to revise graphic representations to correct errors, expand visuals, add details, etc.

Evaluation Measures

- Establish student self-tracking measures.
- Establish teacher method of providing student feedback.
 - Item test/reporting back
 - Conferencing
 - Rubric
 - Informal feedback
- Establish procedures for student comparison of self-evaluation to teacher evaluation.

Develop Projects

- Assign projects that require students “to generate and test hypotheses through problem-solving tasks.”
- Engage “students in projects that require them to generate and test hypotheses through decision-making tasks.”
- Engage “students in projects that require them to generate and test hypotheses through investigation tasks.”
- Engage “students in projects that require them to generate and test hypotheses through experimental inquiry tasks.”
- Engage “students in projects that require them to generate and test hypotheses through systems analysis tasks.”
- Engage “students in projects that require them to generate and test hypotheses through invention.”

Homework

- Assign homework and in-class activities that assist student in classifying new content.
 - Assign homework and in-class activities requiring students to create metaphors with content learned.
 - Assign homework and in-class activities assisting students in creating analogies with content. (Marzano, 2003, pp. 85-87)
-

APPENDIX J

Interview Questions

Interview Questions

1. How do you determine your instruction?
2. What instructional strategies do you feel you use most often?
3. How has your teaching changed from when you first began?
4. Why do you think that is so?
5. What has changed about your teaching since you became NBC?
6. Please share with me specific examples of how the process of NBC had influenced your teaching practice.
7. Why do you teach the way you do?
8. What/who influences your teaching the most? Why and/or how?
9. Share your philosophy of education as it relates to your classroom practices.
10. What procedures do you follow to develop rules/expectations?
11. Is this typical of your classroom arrangement/makeup?

APPENDIX K

Data Codes

O	Observation
I	Interview
D	Document
T1	NBCT One
T2	NBCT Two
T3	NBCT Three
SD	Similarities and differences
S	Summarizing
NT	Note-taking
GTH	Generating and testing hypothesis
RE	Recognizing effort
PR	Providing recognition
HW	Homework
P	Practice
NR	Nonlinguistic representation
GO	Graphic organizer
Obj	Setting objectives
FB	Feedback
Q	Question
C	Cues
AO	Advanced organizer
Ref	Reflection
SCI	Student centered instruction

APPENDIX L

Example of Jessica's *To Do* List

MY "TO DO" LIST

Mar. 26-30, 2012

"The Gri Gri Tree"

Each day's assignments should be completed before class the following day
(take home work as needed).

MONDAY

- _____ Practice WB p. 177
- _____ Grammar WB p.153
- _____ Read Lev. Rdr. Ch. 1
- _____ Soc. St.:Read & complete summary p. 153 in workbook; Do Vocab. & Study Guide p. 155

Turn in by Tuesday morning

TUESDAY

- _____ Practice WB p. 178
- _____ Grammar WB p. 154
- _____ Read Lev. Rdr. Ch. 2
- _____ Soc. St.: Read & complete Skillbuilder: Resolve Conflicts p. 159, #1-3

WEDNESDAY

- _____ Read "The Gri Gri Tree"
- _____ Practice WB p. 179 (Summary)
- _____ Read Lev. Rdr. Ch. 3
- _____ Science: Flipchart p. 49 "Animals & Parasites"

Use reference books to find facts (minimum 2 fact cards)

Due Thursday

THURSDAY

- _____ Practice WB p. 181-182
 - _____ Grammar WB p. 157
 - _____ Read Lev. Rdr. Ch. 4
 - _____ Science: TN Science Workbook Read p. 4-7 & complete questions #4-10
- Due Friday

FRIDAY

- _____ Reading Assessment
- _____ Grammar Assessment
- _____ Spelling Test-Unit 26
- _____ Take Lev. Rdr. A.R. Test

VITA

AMY W. HALL

Personal Data: Date of Birth: January 3, 1970
 Place of Birth: Morristown, TN
 Marital Status: Married

Education: East Tennessee State University, Johnson City, TN, Ed.D.,
 Educational Leadership, August 2012.
 Lincoln Memorial University, Tazewell, TN, Ed.S., Educational
 Administration, 2006.
 Carson-Newman College, Jefferson City, TN, M.Ed., Curriculum
 and Instruction, 1995.
 Carson-Newman College, Jefferson City, TN, Elementary
 Education, B.S., 1991.
 Public Schools, Morristown, TN.

Professional Experience: Title I Coordinator/Reading Specialist, West Elementary School:
 Morristown, TN, 2008-Present.
 Teacher, West Elementary School; Morristown, TN, 1992-2008.