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Effects of Experience and Certification Level on Professional Development, Teacher Quality, and Increased Leadership Opportunities of NBCTs

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EFFECTS OF EXPERIENCE AND CERTIFICATION LEVEL ON PROFESSIONAL DEVELOPMENT, TEACHER QUALITY, AND INCREASED LEADERSHIP OPPORTUNITIES OF NBCTS

by

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Dissertation

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ABSTRACT

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Title: Effects of Experience and Certification Level on Professional Development, Teacher Quality, and Increased Leadership Opportunities of NBCTs (Under the direction of Dr. Bruce Bryant)

The focus of this dissertation was to provide insight into the perceptions of Arkansas National Board Certified Teachers (NBCTs) in regard to how the certification process impacted teaching and learning and overall student achievement. The purpose of this study was to determine the effects of experience and certification level on the perceptions of NBCTs in Arkansas concerning the quality of professional development earned, enhanced teacher quality, and increased leadership opportunities as a result of the National Board Certification process. An additional purpose of this study was to determine specifically how NBCTs perceived the certification process influenced student achievement within the classroom and school.

The researcher conducted the study with 550 NBCTs in Arkansas. The participants represented the Northwestern, Southwestern, Central, Northeastern, and Southeastern regions of Arkansas. Within these five regions, the researcher used stratified random sampling to group the participants by level of certification, K-6 or 7-12, and years of experience. 3-10 or 11 or more.

The researcher used a survey instrument to determine the effects of the certification process on the dependent variables, professional development, enhanced teacher quality, and increased leadership opportunities. The survey instrument included 33 items that asked teachers to indicate their beliefs regarding the impacts that the certification process had on each dependent variable. In addition, the instrument contained two qualitative items. The purpose of these items was to allow the researcher to gain specific examples regarding the impacts—within the classroom and school—of the certification process. The researcher piloted the survey instrument prior to the study to determine reliability and validity of the instrument. To address the three hypotheses, the researcher conducted a 2 x 2 factorial analysis of variance (ANOVA). The researcher used descriptive statistics to address the research questions concerning the beliefs of Arkansas NBCTs regarding impacts the certification process had on student achievement within the classroom and school.

The results of this study showed no significant interaction between certification level and years of experience for the three hypotheses. However, survey results suggested that the certification process was a beneficial professional development that enhanced teacher quality and student achievement. Survey results indicated the certification process honed skills necessary to differentiate instruction, reflect upon teaching and learning, and use assessment data to improve instruction. In addition, participants reported that Certification improved student achievement within the classroom and school. However, participants demonstrated the belief that the certification process failed to increase leadership opportunities within the school.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

Education is essential to obtain the knowledge, skills, and dispositions necessary for future success. Knowing this, educators continue to look for ways to improve student learning. Today, teacher quality continues to be at the heart of student academic success (Koppich, Humphrey, & Hough, 2007). Consequently, educational leaders continue working to define and to improve teacher quality. In fact, in a Texas study, Ferguson (1991) concluded that teacher quality had the greatest impact on student achievement. Koppich et al. (2007) noted that a growing body of research links student success to the quality of teaching within the classroom. Thus, to improve the academic achievement of students, educational leaders must first implement strategies to improve teacher quality.

Teacher quality is comprised of various factors. McKenzie (2013) stated that teacher quality is a reflection of content knowledge, years of experience, and level or degree of certification. She noted that the need for quality teachers and child-initiated classrooms had been the goal of educational reform during the 20th century. Although enhanced teacher quality has been a part of that reform movement, educational leaders continue to emphasize the importance of teacher quality by searching for ways to identify exemplary teachers and use their expertise to increase the effectiveness of others.

The Carnegie Corporation (1986) concluded in their *A Nation Prepared: Teachers for the 21st Century* that the American education system was in a state of crisis and that a

means for identifying and recognizing distinguished teachers was necessary (Vandevoort, Amrein-Beardsley, & Berliner, 2004). As one result, in 1987, the National Board for Professional Teaching Standards (NBPTS) began to identify effective teaching based on a set of national standards (Helding & Fraser, 2013). Since the implementation of NBPTS, over 100,000 teachers have received National Board Certification, and numerous others are currently candidates in various grade and content areas (Humphrey, Koppich, & Hough, 2005). Therefore, educational leaders continue to see an increase in the number of National Board Certified Teachers (NBCTs) within their schools.

Although there is a plethora of research available regarding the impacts of National Board Certification, extraneous variables contribute to mixed research results. Through various studies, researchers suggested that National Board Certification does positively influence student achievement through the enhancement of professional development and teacher quality (Cavalluzzo, 2004; Humphrey et al., 2005). Although these studies exist, others argue that National Board Certification has little positive impact on improving teacher quality and student achievement, thus signifying the need for additional research.

Statement of the Problem

First, the purpose of this study was to determine the effects of experience and certification level on the perceptions of NBCTs in Arkansas concerning the quality of professional development garnered as a result of the National Board Certification process. Second, the purpose of this study was to determine the effects of experience and certification level on the perceptions of NBCTs in Arkansas concerning enhanced teacher quality as a result of the National Board Certification process. Third, the purpose of this

study was to determine the effects of experience and certification level on the perceptions of NBCTs in Arkansas concerning increased leadership opportunities as a result of the National Board Certification process. In addition, the researcher asked two research questions to help determine the perceptions of NBCTs concerning how being a National Board Certified teacher specifically influenced student achievement within the classroom and school.

Background

Research highly reflects the positive impacts that National Board Certification has on student achievement. However, other research exists that refutes the contention that National Board Certification has a positive effect on all students in all subject areas. In fact, Cavalluzzo (2004) suggested that factors such as teacher experience, level of certification or degree, and student characteristics may determine the degree of influence that National Board Certification has on teacher quality. Knowing that data reflecting both sides of the research question is available, the researcher attempted to provide the reader with studies that adequately portray both opinions.

History of National Board Certification

In the last few decades, education has experienced many changes, implemented as a means to improve the teaching and learning process at all grade levels. During the 1980s, major changes were necessary to improve teacher quality (Koppich et al., 2007). According to the researchers, *A Nation Prepared* offered opportunities for teachers to receive higher salaries, increase professional autonomy, and enhance career opportunities. In exchange for these benefits, researchers postulated that "teachers would agree to higher standards for themselves and greater accountability for student

performance" (p. 7). In an effort to increase student achievement through enhanced teacher quality, NBPTS established a set of national standards for what excellent teachers would need to know and be able to accomplish in their classroom (McKenzie, 2013). Consequently, the NBPTS uses standards that define quality teaching regardless of geographic location.

Although NBPTS encourages participation in the certification process, prior experience in the classroom is necessary. Through the process outlined by NBPTS, teachers with a minimum of 3 years of classroom experience are eligible to participate in the certification process (Viviano, 2012). To enhance teaching and learning, the NBPTS established a rigorous yet relevant process for teachers to acquire the knowledge, skills, and dispositions necessary to be analytical and reflective decision-makers in the classroom (Humphrey et al., 2005). Humphrey et al. reported that the National Board Certification process is one that requires approximately 300-500 hours of work upon the part of the teacher. Prior to 2014-2015, the National Board candidate was required to complete four portfolio entries that reflected his or her teaching capabilities and the impacts of the teaching on student achievement. Within the four portfolio entries, the candidate was required to submit two video recordings of classroom lessons, track the academic progress of two students over a unit of study, and examine his or her degree of parental and community involvement within the educational process (Helding & Fraser, 2013; Hunzicker, 2011). The NBPTS (2013) noted that recent changes in the certification process have been made and will be implemented with candidates during the 2014-2015 school year. The purpose of these changes is to remove financial and time-restraining barriers and make achieving certification more obtainable to classroom teachers.

Although the NBPTS (2013) has made changes in regards to timeline, costs, and requirements, the rigorous expectations remain, thus protecting the quality of the certification process. In regards to requirements, the NBPTS has developed four components in which candidates must demonstrate mastery. These components include content knowledge, differentiation of instruction, teaching practice and classroom environment, and effective and reflective practitioner. According to the NBPTS (2013), successful candidates must demonstrate mastery through assessment exercises as well as electronic portfolio submissions in each of the components. Trained classroom teachers score submissions. In fact, Helding and Fraser (2013) noted that by using classroom teacher assessors, NBPTS measures enhanced content knowledge, a quality of effective teachers. The assessors have extensive knowledge regarding the five core propositions and the standards that define NBCTs, which is necessary to identify successful candidates.

In order to target increased professional growth and development, the NBPTS established five core propositions that serve as the unifying theme through the portfolio entries and online assessments. These core propositions require teachers to commit to students and their learning, know their subject and related pedagogy, serve as responsible monitors and managers of student behavior, behave as systematic thinkers, and serve as members of learning communities (Helding & Fraser, 2013). The researchers noted that the core propositions serve as the necessary foundation to hone teacher performance and positively impact student achievement.

Today, there are more than 100,000 NBCTs across the country. This is significant compared to the first cohort who achieved Certification in 1993 (Helding & Fraser,

2013). The increase in candidate success is partially a result of the hard work attributed at the state level. States have used support systems to help increase the number of NBCTs. Hunzicker (2011) noted that support systems and collaboration are essential to certification achievement. She studied three teachers and the impacts the National Board Certification process had on their teaching. Two of the three teachers commented that the National Board process was successful and improved their practice through acquiring a closer alignment between instructional goals, activities, and assessments. One of the teachers failed to earn Certification; this teacher commented that the process did not have significant effects on her teaching. The researcher noted that of the three candidates, the one that failed to achieve certification lacked collaboration through a support system, a vital component to achieving National Board Certification. In addition to support systems, most states offer monetary incentives to NBCTs. These incentives increase the number of teachers who apply for candidacy (Koppich et al., 2007). Through these means of continued support at both the state and local level, more teachers are achieving National Board Certification.

Teacher Experience

Teacher experience impacts the quality of teaching and learning within the classroom. According to Rice (2010), teacher experience influences student achievement. She noted that the effect of teacher experience is significant during the first years of teaching. The researcher continued that as teachers acquire more experience, classroom performance plateaus and undergoes marginal impacts. Belden (2002) studied the effects on NBCTs in California. The study captured the perceptions of NBCTs in regard to their motivation to become credentialed, how certification influenced their teaching, leadership

roles of NBCTs within their schools, characteristics of NBCTs, and their distribution through schools within the state. She reported that 79% of the participants enrolled in the certification process because of the professional development opportunity to strengthen their teaching. Similarly, Diskey (2001) surveyed 600 NBCTs to determine the impact that the National Board process had on teacher improvement. She observed that of the teachers that completed the survey, 80% stated that the National Board process was better than other professional development experiences. She reported that one teacher commented, "The certification process was a very intense and personal experience for me and directly affected the way I think about my teaching" (p. 5). Although knowledge and skills gained through professional development are paramount to improved teacher quality, regardless of the level of experience, some candidates pursue certification in the hope of increased leadership opportunities (Belden, 2002). Through leadership opportunities, teachers are able to share knowledge and skills with their colleagues and serve as change agents within the school.

Teacher leadership is paramount to successful change within schools. Belden (2002) reported that out of the NBCTs surveyed in California, teachers with less experience said that the enhanced possibility of leadership opportunities served as motivation to receive certification. In this study, Belden noted that significant gains in leadership opportunities within the school did not exist. She stated, "The NBCTs are very likely to say that they were already involved in general school committees, mentoring programs, and professional development activities before they earned their certification" (p. 50). However, the researcher used survey results to demonstrate how National Board Certification influenced teachers' roles in post-secondary opportunities and positions. For

example, Belden explained that 9% of the teachers surveyed reported they had served as an adjunct instructor at the college level prior to certification. However, 68% of the teachers surveyed stated they had served in this role since certification.

Although research is available that suggests leadership opportunities within the school remain the same after certification, studies are available that focus on possible reasons that leadership opportunities are hindered. For example, Koppich et al. (2007) discussed a study in which the researchers administered surveys to schools in six states. The researchers sent the surveys to schools based upon their status as either an elementary or secondary low or non-low performing school. For the purpose of the study, the researchers defined low performing schools as those with low-test scores in the bottom three deciles over a period of 2 years. The purpose of the study was to determine circumstances within schools that contribute or hinder the NBCTs' ability to serve as agents of change in low-performing schools. The researcher selected the top three surveyed states with the greatest population of NBCTs. The researchers reported that in these states, California, North Carolina, and Ohio, NBCTs were unequally distributed and underused. In fact, the researchers reported that underutilization of NBCTs was and could continue to be a result of the principal's lack of understanding in regard to the leadership roles and agents of change that NBCTs could serve as within the school.

Although the level of experience varies with National Board candidates, individuals with fewer years of experience often report greater learning and more positive outcomes from the National Board process than more experienced teachers. Lustick (2002) compared the impacts of National Board Certification on five NBCTs. He found that the varying knowledge and skills possessed by the teacher have a tendency to reflect

the degree of learning through the process. In fact, Lustick and Sykes (2006) studied 120 science teachers seeking National Board Certification. They noted that regardless of experience, approximately 75% or more of the National Board candidates demonstrate some degree of learning through the candidacy process. However, regardless of experience, the degree of learning that transfers to the classroom is still unclear.

Teacher Certification

Regardless of teacher certification, K-6 or 7-12, National Board Certification is available to all teachers and building level leaders. According to Helding and Fraser (2013), NBPTS offers 25 certificates at various grade and subject levels. The researchers provided evidence that suggests National Board Certification has had similar results on student achievement regardless of certification area. For example, they discussed the results of their study in Florida where they compared 443 middle and high school students in 21 8th and 10th grade science classes taught by NBCTs to 484 students in 17 classes taught by non-NBCTs. The researchers noted that the purpose of the study was to examine the impact that National Board Certification had on student achievement, student attitudes, and the classroom-learning environment among secondary science students. The researchers noted that statistically significant differences were found to support NBCTs in regard to the classroom environment and student attitudes on achievement. Likewise, Vandevoort et al. (2004) found similar results when they completed a study with elementary students in the classrooms of 35 NBCTs. The researchers compared the academic gains of all third through sixth-grade students who attended classes with NBCTs and non-NBCTs. The researchers conducted the 4-year study in 14 Arizona schools. Researchers used Stanford Achievement data in reading,

mathematics, and language to determine gain scores for all students. They reported that three-quarters of the students' gain scores were higher in classes taught by NBCTs. Of these students, one-third demonstrated statistically significant gains in reading, mathematics, and language. Furthermore, the researchers used the effect size of these gain scores to determine grade equivalents. As a result, the researchers concluded that the gain scores of students taught by NBCTs were over one month greater compared to gains of students taught by non-NBCTs.

Although some studies suggest that NBCTs have a positive influence on overall student achievement, other studies are available that argue NBCTs influence student achievement at various grade levels even when overall achievement remains the same. For example, Falaney (2006) evaluated the effects of NBCTs on literacy and mathematics achievement of both fourth and fifth-grade students. She used a state comprehensive assessment to determine if students taught by NBCTs produced higher mean gain scores than students taught by non-NBCTs. She noted that results did not indicate a statistically significant difference in the overall average reading comprehension and mathematics achievement of students taught by NBCTs; however, there was a statistically significant main effect for grade level. In fact, she used follow-up tests and reported a statistically significant difference between reading at the fourth and fifth-grade levels.

Although research exists that supports the idea that regardless of teacher certification level, NBCTs positively influence student achievement, research is available to dispute such findings. For example, Stone (2002) published a report that stated that NBCTs in Tennessee were average compared to other teachers within the district. He stated that there remained little reason to expect a positive relationship between National

Board Certification and increased student performance. This report reflected another viewpoint in regards to the impacts that NBCTs have on both K-6 and 7-12 students. Likewise, Rouse (2008) reported a study in which he used 54 teachers to determine if National Board Certification made a difference in academic achievement for students in kindergarten through eighth-grade. He used a matched-pair design and a correlated samples *t*-test to determine impacts on student achievement. He reported that no statistically significant difference existed in student achievement for students taught by NBCTs.

Geographic Location

Student achievement is greatly influenced by the geographic region in which the student lives. Brown and Swanson (2003) noted that low-performing students are generally located within public rural schools. Brown and Swanson reported a study that examined the effects of school size and poverty level on student achievement. The researchers stated that results were consistent and that rural schools in southern states typically had the lowest level of student achievement. Although progress has been made since the 1990s, the researchers noted that rural schools continue to lag behind urban and suburban schools in educational achievement. Knowing this, the difference in the initial level of student performance may influence teachers' perceptions regarding the degree of impact the National Board Certification process has upon student achievement.

In Arkansas, there are significant differences in demographics and the socio-economic status within the various regions of the state. For example, Northwest Arkansas has a much higher socio-economic status than Southeast Arkansas. In addition, demographic trends vary within geographic regions as higher subpopulations of students

are represented throughout the state. These differences result in an unequal representation of material and resources throughout the state. According to the Arkansas Department of Education Data Center (n.d.), overall student achievement and graduation rates vary throughout the state of Arkansas. Schools within various regions of the state have difficulties maintaining quality teachers, which has resulted in higher levels of teacher turnover. As Rice (2010) noted, since overall teacher growth increases during the first few years of teaching, one might suspect that regions of the state with a higher percentage of novice teachers would find the National Board process to be more beneficial than areas with more experienced teachers. Consequently, teachers' perceptions regarding the impact of the National Board Certification may vary within the different geographic regions of Arkansas.

Hypotheses and Research Questions

The initial review of the literature suggested that National Board Certification may positively impact student achievement. In fact, the research suggested that NBCTs have the possibility of increasing student achievement if the teacher transfers the learning from the certification process to the classroom. This researcher-presented evidence regarding the NBCTs' perceptions of the National Board process on professional development, parental involvement, increased leadership opportunities, and student achievement. Based upon the initial literature review, this researcher felt that similar results would exist regardless of grade level certification or years of experience. Therefore, the researcher generated the following hypotheses.

1. No significant differences will exist by experience and certification level on the perceptions of Arkansas NBCTs on the National Board Certification process professional development.
2. No significant differences will exist by experience and certification level on the perceptions of Arkansas NBCTs on enhanced teacher quality as a result of the National Board Certification process.
3. No significant differences will exist by experience and certification level on the perceptions of Arkansas NBCTs on increased leadership opportunities as a result of the National Board Certification process.

The researcher also used the following research questions.

1. Specifically, how do you think student achievement within your classroom has benefited from your becoming a NBCT?
2. Specifically, how do you think student achievement within your school has benefited from your becoming a NBCT?

Description of Terms

Candidate. Humphrey et al. (2005) defined candidate as an individual enrolled in the National Board process who must prepare a professional portfolio to reflect teaching practices.

Certification level. For the purpose of this study, the researcher defined the teacher's certification level based upon the grade span taught; the researcher defined these grade spans as K-6 or 7-12.

Child-initiated. McKenzie (2013) defined child-initiated as classroom experiences where children appear to be more creative and use higher order thinking activities within academic-centered classrooms**.**

Core proposition. Helding and Fraser (2013) defined core proposition as the basis of high standards required by National Board Certification.

Experience. For the purpose of this study, the researcher defined the teacher's level of experience based upon the number of years of teaching the candidate had at the time of undergoing the National Board Certification process.

Geography. For the purpose of this study, the researcher placed participants into groups based upon their geography or location within the state of Arkansas. The researcher defined geographical areas based upon the counties represented in the sample population.

Leadership skills. The researcher has defined leadership skills as the attributes that result in the ability to model desired practices and develop a collaborative team that is able to work together to achieve identified goals. Attributes might include trustworthiness, honesty, organization, knowledge, collaboration, and data-driven decision-making.

National Board Certification process. The NBPTS (2013) defined the National Board Certification process as one designed to collect standards-based evidence of accomplished practice. Through this process, candidates are required to complete four components: three online portfolio entries and a computer-based assessment, which is conducted at a testing center.

National Board Certified teacher. Candidates who successfully complete the National Board Certification process by meeting the standards listed by the NBPTS are considered NBCTs.

National Board for Professional Teaching Standards. The NBPTS (2013) is an independent, nonprofit organization that uses classroom teachers to establish standards of excellent teaching and to help educators across the nation to meet these high and rigorous standards.

National standards. McKenzie (2013) defined national standards as a set of guidelines for what excellent teachers should know and be able to do in their classrooms with students. These standards are uniform and accepted nationally as being qualities of excellent teaching.

Professional development. According to Koprowicz (1994), professional development is the opportunity for teachers to strengthen their practice through self-examination.

Teacher quality. Teacher quality is defined as the ability and effectiveness of the classroom teacher to meet the needs of students and improve overall academic achievement. According to Walsh and Tracy (2004), teacher quality is directly influenced by teacher coursework and education.

Significance

Research suggests teacher quality is of vital importance to sustainable student achievement. In addition, researchers claim that National Board Certification will increase teacher professional development and overall teacher quality. Knowing this, the researcher developed hypotheses to determine the validity of the NBPTS on the

improvement within these areas. As teachers learn and engage in ways to increase the quality of classroom teaching, they will be more likely to implement strategies to increase student achievement.

Research Gaps

A significant amount of research is available regarding the impacts of National Board Certification on teaching and learning. Although many studies exist, gaps are present within the research. According to McKenzie (2013), research gaps exist that focus on what effect National Board Certification has on the teaching practices of early childhood teachers. She asserts that more research is necessary regarding the impacts of National Board Certification on teacher behavior and student achievement.

Knowing this, it is essential that research provide evidence of the impacts that National Board Certification has on teacher performance. Furthermore, studies need to demonstrate the effects that certification has on teacher attitudes, perceptions, and beliefs in various areas that directly affect teacher quality and performance. Although studies are available regarding teacher perceptions of professional development and leadership opportunities earned as a result of certification, the results are mixed. Consequently, it is paramount that researchers continue to study the impacts of National Board Certification on classroom teachers and determine how factors such as level of experience and certification influence teacher perceptions and student performance.

Possible Implications for Practice

Over the last two decades, educational leaders and administrators have looked for ways to increase student achievement. Many members within the educational community have tried a plethora of strategies to increase teacher quality and student performance in

the classroom. Since the 1990s, the NBPTS has developed a reputation for using a rigorous and relevant process to identify highly qualified teachers. Today, state governments place a significant emphasis on National Board Certification. Most states back the NBPTS process by budgeting large amounts of money to provide teacher support and incentives to attract candidates. As a result, the educational community has a desire to know how the National Board process impacts teacher quality and student performance.

As more research is presented to the educational community, individuals are able to make educated decisions regarding the impacts of NBPTS upon teaching. Many extraneous factors exist that hinder the reliability of current research. In many cases, educators question how variables such as years of experience and certification level influence teacher perceptions concerning growth from the National Board process. This study attempts to address this issue. Through the research findings, educational leaders will gain insight regarding the possible implications that National Board Certification has on teaching and learning.

Process to Accomplish

To examine the proposed research hypotheses, the researcher implemented a study with the following design. The researcher used the available sample and instrumentation below to collect necessary data. The data were analyzed to allow the researcher to make conclusions regarding the study.

Design

A quantitative, causal-comparative strategy was used in this study. All three of the research hypotheses were 2 x 2 factorial, between groups designs. The independent

variables were years of experience (3-10 versus 11 or more) and certification level (K-6th or 7th-12th). The dependent variable for Hypothesis 1 was the perception of professional development earned as a result of the National Board process. The dependent variable for Hypothesis 2 was the perception of the degree of teacher quality resulting from the National Board process. The dependent variable for Hypothesis 3 was the perception of the increased leadership opportunities resulting from the National Board process. After categorizing and coding the responses to the two open-ended research questions, the researcher used descriptive statistics to describe the responses for each category.

Sample

The study used NBCTs in Arkansas. The researcher randomly selected 550 NBCTs in Arkansas to take part in the study. In order to determine the 550 participants, the researcher first grouped the NBCTs by geographical location. The researcher placed the participants into either the Northwest, Northeast, Southwest, Southeast, or Central regions within the state. In this study, the researcher defined the geographic location of the participants in terms of the proximity to identified cities within the state.

Within these five regions, the researcher used stratified random sampling to group the participants by level of certification, K-6 or 7-12, and years of experience, 3-10 or 11 or more. The sample consisted of both male and female representatives. The researcher randomly selected the 550 participants from the five regions of the state to obtain a true depiction of the educator population within the state of Arkansas.

Instrumentation

The researcher used a survey instrument to determine the effects of the certification process on the dependent variables. The researcher provided the survey to all

participants to determine teacher perceptions regarding the impacts of National Board Certification. Belden (2002) composed the survey instrument in a previous research study regarding the effects of National Board Certification on student achievement. There was no statistical information reported regarding the survey instrument. The researcher obtained approval from the author before using the instrument in the study. For the purpose of this study, the researcher modified the survey instrument to obtain data to answer the posed research questions. The instrument consisted of 33 items that asked teachers to indicate their beliefs regarding the impacts that the National Board Certification process had on professional development, teacher quality, and increased leadership opportunities. The researcher designed the items on a Likert scale; this allowed participants to rank their perceptions regarding the degree of impact the National Board Certification process had on the identified variables. Also, the instrument contained two qualitative items. The purpose of these items was to allow the researcher to gain specific examples regarding the impacts—within the classroom and school—of the National Board Certification process.

In order to evaluate the validity and reliability of the survey instrument, the researcher conducted a pilot test. The pilot test was conducted on NBCTs within Northwest Arkansas. The participants of the pilot test were chosen from this geographic location due to the ease of communication for the researcher. The researcher emailed an initial invitation to complete the online survey along with a reminder. The researcher stored the collected survey and performed statistical tests on his computer.

Data Analysis

To address the first hypothesis, the researcher conducted a 2 x 2 factorial analysis of variance (ANOVA). The researcher used teacher certification by years of experience as the independent variables and the overall teacher perception of professional development earned as a result of the National Board Certification process as the dependent variable. To address the second hypothesis, the researcher used a 2 x 2 factorial ANOVA with teacher certification by years of experience as the independent variables and the overall teacher perception regarding the impacts the National Board Certification process had on teacher quality as the dependent variable. The researcher examined hypothesis number three by a 2 x 2 factorial ANOVA with teacher certification by years of experience as the independent variables and the overall teacher perception of increased leadership opportunities as a result of the National Board Certification process as the dependent variable. To test the null hypothesis, the researcher used a two-tailed test with a .05 level of significance. The responses from the research question were categorized, coded, and aggregated. The researcher discovered themes by which the responses were organized. Descriptive statistics based on these themes and categories were computerized and displayed using EXCEL software.

CHAPTER II

REVIEW OF THE RELATED LITERATURE

Education is fundamental for success in the 21st century. Today, young adults face a future that requires more education to compete in the job market and acquire careers in competitive fields. According to Alethea (2007), the quality of education provided to students largely determines future success and influences the degree of contributions individuals make to society. In most cases, businesses search for individuals with a quality education that has provided rigorous and relevant learning experiences.

Although differences exist in what defines a *quality* education, most individuals share the belief that enhanced educational standards are necessary to prepare students for the workforce and life in general. Employers are diligently searching for individuals who possess the knowledge, skills, and dispositions required to be successful employees. To meet the needs of students and produce high-quality workers, education has experienced many changes in the last century. Gutek (1995) stated that these changes associated with the history of education are partially responsible for the state of education today. These changes, both at the state and national level, have been paramount to the task of improving teacher performance and overall student achievement to produce productive citizens and life-long learners.

The Early Years of Education

National Board Certification is a result of the need for enhanced teacher quality. This desire for enhanced teacher quality is a product of the changes in education over the last few centuries. Today, individuals criticize education in the United States when compared to other countries. However, since the 17th century, education has experienced many changes that have transformed the function and effectiveness of the educational system. Initially, education occurred within the home (Watson, 2014). In the 1600s, legislative acts in Massachusetts compelled the education of children. Through these legislative acts, the *Old Deluder Satan Law of 1647* was established. According to Hazlett (2011), the purpose of this law was to assure that teachers provided education for students who lived in towns with over 50 people. In fact, according to the *Old Deluder Satan Law of 1647*, populations of 50 were required to hire a reading and writing teacher, and populations over 100 were required to have a Latin Grammar School. Cubberly (2010) stated that the Latin Grammar School was a type of secondary school that taught Latin, Greek, and some elementary mathematics. Cubberly noted that these Latin Grammar Schools were common in and throughout England by 1600. Consequently, early New England settlers first introduced Latin Grammar Schools to the American colonies. Through these early schools, education began to evolve into the system in place today. Far from these rudimentary beginnings, teachers now have access to many professional learning opportunities, including National Board Certification. Through this process, teachers strive to improve their teaching ability and provide opportunities for their students to be successful.

Early education was predominately for male students. Although instruction in reading, writing, and mathematics was important for students to learn essential skills needed for the future, early education was initially provided for religious purposes. According to Hazlett (2011), the *Old Deluder Satan Law of 1647* was an effort to teach youth to read to allow them access to the *Bible.* Although the number of American students receiving an education increased, teachers continued to struggle with limited materials. According to Hazlett, educators and legal representatives introduced teachers to the *New England Primer* in 1690. Although teachers still struggled with limited materials, educators accepted and used the *New England Primer* until 1800. While schools today have access to more educational materials than ever before, educational leaders still work to enhance the teaching and learning that occurs within the classroom. According to NBPTS (2013), the National Board Certification process improves teaching and learning, provides teachers with the knowledge and skills necessary to know and use the resources available in the classroom, and enhances the quality of education for students. Although resources are important, the ability of the teacher to connect with the students and provide rigorous opportunities for students is paramount to future success.

Although the number of students receiving an education continued to increase, it was not until the 19th century that the first public education system was established. According to Brackemyre (2012), prior to the Revolutionary War, women were limited to an education that consisted of basic reading, writing, and homemaking skills. However, post-Revolutionary War, women began to receive more adequate educational opportunities. In fact, toward the end of the 18th century, the first female academy opened (Brackemyre, 2012). This was a milestone and truly the beginning of the belief

that education was essential, and that everyone, regardless of gender, deserved an equal opportunity to learn.

By the end of the 18th century, with more students receiving an education, the need arose to assure that a structured educational experience was available in all schools. During the 1840s—the era of the common school—a structured system of public education emerged in the United States (Brackemyre, 2012; Gutek, 1995). This structured system of education was a result of Horace Mann, a Massachusetts senator who supported school reform (Cubberly, 2010; Gutek, 1995). Both Cubberly (2010) and Gutek (1995) asserted that the educational system was suffering, and the quality of learning was deteriorating. Consequently, in 1837, Massachusetts created the nation's first board of education, with Mann as its secretary.

During this time, Mann developed six main principles of education. Through these principles, Mann established the belief that citizens need education. He argued that education should be paid for, controlled by, and maintained by the public. Furthermore, Mann believed that—regardless of backgrounds or beliefs—education should be for everyone. This principle aligns with the philosophy of National Board Certification that teachers should work to meet the needs of all students. In order to accomplish this task, teachers must know their students and plan instructional experiences according to student needs and learning styles. Mann included the idea that education must be nonsectarian, taught by using tenets of a free society, and provided by well-trained teachers (Cubberly, 2010; Gutek, 1995). Although education was taking a turn in the right direction, it would not be for another century that educators and political leaders would help to remove some of the barriers regarding free and appropriate education for everyone.

The 20th century brought many changes to education. Prior to this century, legislatures and concerned citizens had established principles that would serve as the foundation for the future. John Dewey contributed to the progressive movement in American education during this time. It was Dewey and his beliefs that echoed and reinforced the ideas that education should encourage a child's freedom, educate the whole child, be relevant to daily life, and involve cooperation between the school and the child's home (Gutek, 1995). Although education was moving in the right direction, at the turn of the 20th century, schools in the South, and many in the North, were segregated (Watson, 2014). In 1954, the Supreme Court declared that public schools would be available to all students—regardless of race. This ruling in *Brown v. Board of Education* overturned the Supreme Court ruling of *Plessy v. Ferguson,* which had upheld the legality of segregation for 58 years. As a result, more students were receiving an education; however, the need remained to improve teacher quality and student learning.

By the middle of the 1900s, education had experienced many challenges. As a result, education had changed in many ways. At this time, all students were attending public school, and education was free and appropriate. Also, education was more advanced, yet the mid-20th century brought a need for still more change (Watson, 2014). These changes were necessary for preparing students for life beyond the public school system. During the 20th century, both educational principles and legislative actions prompted changes to address enhanced student achievement, teacher accountability, teacher quality, and standardized testing (Bellow, 2012). Through this movement, teacher professional development opportunities—such as National Board Certification—were established and viewed by many as a means to help narrow the gap between teacher

quality and student achievement. As education changed, so did the population and their needs. Consequently, even in the 20th century, changes in the educational system were needed to meet the rapidly changing diverse needs of students, teachers, and community members.

Twenty-First Century Education

Education today is a product of the many changes that have occurred over the last several years. Today, 21st-century education is defined specifically by the many undertakings of various educators and educational philosophers during the 20th century. Many variables have influenced education and contributed to the current level of success; however, changes during the last several years have been instrumental in helping define education today. Among many instructional changes, the need for student-centered learning began to increase. As a result, cooperative learning, which began in the mid-1960s, became widely used in classrooms (Johnson & Johnson, 1999). However, advocates of social Darwinism failed to accept the idea that cooperative learning was best for students. In fact, individuals with these views believed that educators should teach students how to survive as an individual in order to be successful in the future (Johnson, Johnson, & Smith, 2007). Today, educators use student-centered approaches to learning in many of the public and postsecondary schools in the country. Through professional developments such as National Board Certification, teachers have gained the knowledge and skills necessary to develop learning opportunities that engage learners (NBPTS, 2013). This instructional change has helped individuals gain the knowledge and skills necessary to work with others and thrive on the success earned through group efforts.

These skills, along with an increased level of social interdependence, are necessary for the 21st century and are paramount to career and life-long success.

Cooperative learning was only one of the many instructional methods that educators began to use as a means of meeting various student needs. According to Aldridge (2010), educators talked about differentiating or individualizing instruction during the 1900s. Educators began to see that differentiating instruction was a means for educators to use various strategies to teach content to all students. Aldridge observed that through differentiation of instruction, the content did not change; however, teachers used knowledge regarding the individual student's strengths and learning styles to develop appropriate and meaningful instruction. Presently, educators have a plethora of instructional tools to increase the level of differentiation within the classroom. In fact, teachers use professional learning communities and collaborative planning time to hone the instructional strategies that best meet the needs of students. According to the NBPTS (2013), collaboration, planning, and differentiation are essential to effective teaching and learning. According to Stuart and Rinaldi (2009), differentiation of instruction has changed in response to the *Individuals With Disabilities Education Improvement Act*. Because of this legislation, educational specialists recommend differentiation school-wide. Currently, many schools use a Response to Intervention (RTI) approach to differentiation (Stuart & Rinaldi, 2009). This approach is designed on the foundation of evidence-based instructional practice and progress monitoring. This multi-tiered approach to meeting the needs of students requires educators to use data to determine student needs, then, through differentiation, design appropriate instructional activities that best meet the individual student's needs. This multifaceted approach to instructional

design demonstrates the change in teaching practices that has occurred since the early one-room schoolhouse where teachers lacked the resources and skills that are available today.

Educators often describe education in the 21st century as student-centered, college preparatory, and rigorous. Today, educators design learning in such a way that communication, critical thinking, and problem-solving skills are at the core of instruction (Carlgren, 2013). Classrooms in the 21st century incorporate the use of technology to teach rigorous content to students. Currently, public schools have more course offerings and provide students the opportunity to learn job skills that are essential for success in the workplace. Furthermore, educators provide students with opportunities to acquire study skills that are essential for higher education. Also, more students are taking advanced science and mathematics courses. These courses and experiences are critical in preparing students to compete in careers in the future. According to Koebler (2012), the number of students taking harder mathematics and science courses has doubled since the 1980s. Koebler stated that in 1982, approximately one-third of high school graduates took chemistry. In 2009, that number had increased to nearly 70%. He added that since 2000, the number of students taking calculus has increased from 11.6% to 15.9%. Although education has experienced many successes, many argue that barriers still exist that inhibit further advancement in learning.

Challenges in education have been and continue to be at the forefront of the minds of educators. One of the challenges education has faced is standardized testing. According to Greenstein (2012) and Sahlberg (2006), the demand for teachers to have students ready for standardized testing has negatively influenced their ability to teach the

critical skills of communication, critical thinking, and problem solving. Both Greenstein and Sahlberg suggested that barriers such as limited teacher experience, along with the demand of time to teach such skills, limit the likelihood of such instruction to students. Teacher professional development such as National Board Certification is essential to help teachers secure the knowledge and skills necessary to increase critical thinking and problem solving in the classroom. Nonetheless, standardized testing continues to be a concern for many educators in the 21st century. According to Domino (2000), schools have used standardized testing at all grade levels for assessment purposes since the initiation of testing in the early 1900s. Since the beginning of the standardized testing movement, educators have opposed the idea of using standardized testing as a single factor to measure student learning. Although the standardized testing movement has undergone many changes, educators continue to use such assessment data to determine student placement, evaluate students, and to determine whether students advance to the next grade (Helms, 2003). Assessment data are useful when making such decisions; however, it is important to realize that there are other factors to consider when determining student achievement.

Narrowing the achievement gap has always been at the forefront of the minds of educators and political leaders. In fact, President George W. Bush made educational reform a top priority in his campaign in 2000 (Walden & Kritsonis, 2008). This was just 10 years after the six national education goals, *America 2000*, had been drafted (Relic, 2000). In 1994, President Clinton modified the six national goals and signed the *Goals 2000: Educate America Act* into law (Stedman, 1994). The purpose of *Goals 2000* was to improve the education of every child through enhanced parental involvement, pre-

kindergarten programs, and quality teaching, as well as to eliminate adult literacy and to make every school drug-free (Relic, 2000). Shortly after *Goals 2000*, more than 40 states drafted educational standards to drive instruction and developed high-stakes assessments at various grade levels (Relic, 2000). This movement of standard-based learning and high-stakes assessment was one of many steps to prepare students for the future.

In early 2002, legislative movements continued to reinforce the need for adequate education and learning for all students. In fact, during January of 2002, President Bush signed the *No Child Left Behind Act* that stated that all students would achieve proficiency in language and mathematics by 2014 (Walden & Kritsonis, 2008). At a time of rapidly declining graduation rates, suddenly an emphasis on preparing all students for proficiency on standardized testing weighed heavily upon the hearts and minds of educators. By now, standard-based instruction was becoming the norm; however, challenges existed there too. In efforts to excel and have higher levels of student achievement, many states found ways to make state assessments achievable for students (Relic, 2000). Relic (2000) asserted that through this process, some states lowered their standards to increase student achievement on state assessments. Through this process, constituents realized the need to have all states teaching the same content with equal amounts of rigor. Consequently, the desire for national educational standards became a reality.

Twenty-first-century education is impacted—positively or negatively—by national standards. According to Bidwell (2014), the Common Core State Standards seemed to come from nowhere. Bidwell noted that many educators argued that legislators implement national standards as a way to control local education. In contrast, others view

the Common Core State Standards as necessary to assure that students are not graduating ill-prepared for post-secondary opportunities. Knowing this, the Common Core State Standards were necessary to prepare students graduating from high school to be successful in college-entry courses and workforce training programs (Conley, Drumond, Gonzalez, Rooseboom, & Stout, 2011). Conley et al. (2011) reported that the Common Core State Standards were designed to allow states to share curriculum and assessments while maintaining the instructional method and delivery of the teacher. The Common Core State Standards and new online assessments are among the latest changes in education. As the results of the Common Core State Standards are yet to be determined, one must agree that the quality of education has improved over the last century. Nonetheless, Common Core State Standards are one of many variables in the effort to improve the quality of student learning. However, one must realize that at the heart of all student learning is the teacher. In fact, some argue that teacher quality may serve as the single most important factor associated with student achievement and long-term success. Knowing this, it is paramount that high-quality professional development opportunities are available for teachers.

Teacher Quality

Teaching quality is at the forefront of the minds of educational leaders. Currently, teachers in many states are influenced by factors associated with geographical locations, failing resources, and outside barriers; however, high-quality teaching is essential. Presently, educational leaders strive to improve teacher quality at the local level; as a result, more schools are encouraging teachers to pursue professional experiences that enhance teaching. National Board Certification is one of the most used methods of

professional development designed to enhance teacher quality. According to Helding and Fraser (2013), in response to a struggling education system, in 1987, the NBPTS began to identify effective teaching based upon a set of national standards. Since the beginning of National Board Certification, 110,447 teachers have received National Board Certification. In addition, numerous candidates—at various grades and content areas—are currently engaged in the certification process.

The need to increase teacher quality has been an ongoing process for educational leaders. In fact, since the *No Child Left Behind Act*, schools were required to seek the employment of highly qualified teachers (Goldhaber & Anthony, 2003). Notably, research has demonstrated the fact that teacher quality is the most influential factor that directly influences student achievement (Ferguson, 1998; Hanushek, Kain, & Rivkin, 1999). Knowing that teacher quality is essential to improved teaching and learning, one must examine what factors contribute or define the level of teacher quality. According to Goldhaber and Anthony (2003), teacher degree level may influence teacher quality. Although mixed research exists, evidence is available that suggests that advanced degrees influence the level of teacher quality at various grade and content levels. For example, Goldhaber and Brewer (1997) reported that an advanced degree is not always associated with enhanced teaching and learning at the middle and early high school level. Nonetheless, the researchers reported that having advanced degrees in mathematics and science appeared to influence student achievement. Romanik (2010) echoed the fact that more teachers today have master's degrees, but these degrees alone do not produce high-quality teaching. Romanik suggested that some master's degrees—mathematics and science—are more important than others and may influence teacher quality. Knowing

this, advanced degrees may influence the level of teacher quality; however, the degree of influence may be impacted by other variables.

Teachers gain knowledge and many skills through obtaining advanced degrees. Often, advanced degrees specialize on a certain skill set or knowledge base that has the potential to positively influence teaching. Knowing this, educational leaders continue to frequently identify quality teachers by personal attributes. Romanik (2010) reported that personal attributes such as organization, motivation, respect, critical thinking, responsibility, and high self-achievement are characteristics that predict high levels of teacher quality. In some cases, these personal attributes may be more important for the classroom teacher than earning an advanced degree or certification. Consequently, advanced degrees alone may or may not be sufficient to enhance teacher quality and overall student achievement.

In addition to advanced degrees and personal attributes, teacher level of experience is another variable that may influence teacher quality. According to Romanik (2010), teacher experience appears to be an important characteristic in the first few years of teaching. However, it appears that teacher quality has minimal impacts by teacher level of experience after the first few years of teaching (Murnane, Willett, & Levy, 1995; Romanik, 2010). Hanushek (1986) reported that out of 109 studies regarding the effects that the level of teacher experience has on teacher quality, less than half found a positive relationship. In fact, Hanushek noted that a few studies supported the idea that more experience may sometimes have a negative impact on student achievement. Knowing this, experience is necessary for teacher growth; however, the actions and behaviors of

the teacher during these years of experience are paramount to determining the level of teacher growth.

As school administrators work to increase student achievement, many are targeting enhanced teacher quality. One of the most important duties of educational administrators is to assure that effective teachers are in the classroom. Today, more educational leaders are spending time conducting thorough evaluations of classroom teachers in an effort to improve the teaching and learning and the overall quality of instruction that occurs in the classroom (Goldrick, 2002). Goldrick (2002) reported that in many of today's schools, school administrators base teacher evaluations upon procedural reviews and infrequent classroom observation. Knowing this, if teacher quality is to increase, there must be more emphasis on a system of teacher evaluation that determines and helps meet the needs of novice teachers while enhancing the skills of veteran educators (Danielson, 2007). In order to complete this task, a system of teacher evaluation must be in place to measure and help develop the level of teacher effectiveness in the areas of content knowledge, student engagement, classroom environment, and parental and community involvement. With more emphasis placed on these areas, instructional leaders are able to help promote the growth and level of teacher quality within schools.

To assure quality teaching, Arkansas adopted the Danielson model for teacher evaluation. Danielson (2007) developed a four-domain framework for assuring that high-quality teaching and learning occurs. The four domains include planning and preparation, classroom environment, instruction, and professional responsibilities This framework highly reflects the components found within both *Pathwise*, Arkansas's previous model

for teacher mentoring, and National Board Certification. This method of teacher evaluation promotes teacher reflection and is designed to be used by the instructional leader to develop teacher professional growth plans for the future. According to Taylor and Tyler (2012), there are good reasons to expect that effective teacher evaluation programs could have a direct and long-lasting impact on teacher quality and performance. Knowing this, educational leaders must use all resources available to increase teacher quality and overall student achievement.

According to NBPTS (2013), National Board Certification continues to be used by teachers across the nation as a means to hone instructional practices and improve student achievement. During the 2013-2014 school year, Arkansas ranked number four in the nation with 214 new certifications. Currently, Arkansas ranks number 12 with the total number of NBCTs at 2,777. Although there is a growing number of NBCTs in Arkansas, mixed research exists regarding the influence that the certification process has on teacher quality.

Today, many states and school districts provide monetary incentives to their teachers in an effort to increase the number of NBCTs. Knowing this, policy makers and legislative members are highly interested in the effects that National Board Certification has upon teacher quality. According to the Arkansas Department of Education (n.d.) website, NBCTs who are actively employed within the public school currently receive a $5,000 bonus each year for 10 years. After this time, candidates may engage in the recertification process. Currently, NBPTS is revising the certification process and new candidates will receive a 5-year certificate, requiring a more frequent recertification process. In addition to the state bonus, many schools within the state offer additional

monetary incentives for National Board teachers. Consequently, states use millions of dollars each year to support the National Board Certification process. Therefore, it is paramount that individuals who receive the certification grow and become more effective educators.

Since the state legislatures and policy makers have made significant contributions to the National Board Certification process, it is essential to analyze current research to determine the impacts the certification process has on teaching and learning. Specifically, research in the areas of teacher growth and student achievement is important to the future of National Board Certification. By evaluating the effects of the certification process, educators gain insight on the relationship that exists between the National Board Certification process, enhanced teacher quality, and overall student achievement.

National Board Certification

The purpose of the NBPTS is to enhance student learning through advancing the quality of teaching within the classroom. The NBPTS (2013) developed five core propositions that reflect the qualities that exist within the National Board process as well as successful candidates. These core propositions include the desire that teachers are committed to students and learning and that teachers know their subjects and can teach it to their students. Also, these propositions echo the need for teachers to be able to manage and monitor student learning as well as to continue learning through collaboration with others (Buday & Kelly, 1996). Since the initiation of National Board Certification, a compelling body of research exists that suggests that the certification process positively affects teaching and learning. In many studies, data indicate that the certification process increases teacher quality. Although mixed data exist, current research continues to

support the claim that National Board Certification has positive impacts on student learning (Knoeppel, 2008). Knowing this, it is paramount that researchers continue to conduct studies that analyze and predict the possible impacts that National Board Certification has on teacher quality and overall student achievement.

Currently, research is available that indicates that National Board Certification has positive impacts on teacher effectiveness, classroom environment, and overall student performance. For example, studies in North Carolina and Arizona both indicated that NBCTs had a positive effect on student achievement in both mathematics and literacy (Goldhaber & Anthony, 2004; Vandervoort et al., 2004). In these studies, the researchers found that NBCTs were more effective in both mathematics and reading than non-NBCTs. Vandervoort et al. (2004) reported a 4-year study that involved reading, mathematics, and language scores. This Arizona study found that students taught by National Board Certified teachers outperformed their counterparts on 72.9% of the evaluated measures. In fact, the researchers concluded that students taught by NBCTs had achievement gains equivalent to at least one month beyond those students taught by non-NBCTs (Vandervoort et al., 2004). Cowan and Goldhaber (2015), recently reported a study conducted to determine the influence of National Board Certification on teacher effectiveness in Washington schools. The researchers concluded that NBCTs were about 0.01 to 0.05 student standard deviations more effective than non-certified teachers with similar experience. The researchers suggested that the level of impact varies within areas of certification; however, the greatest effects were reported in middle school mathematics. Furthermore, the researchers argued that teachers who pass the National Board assessment on the first attempt are more effective, 0.08 standard deviations, than

those who are successful after multiple attempts. This research is one of many examples of reports that display the impacts that National Board Certification has on teaching and learning and overall student achievement.

Research is available regarding the impacts of National Board Certification on student achievement; however, it is important to consider individual factors such as school demographics and student populations when measuring teacher success. Researchers such as Knoeppel (2008) and Harris and Sass (2008) are somewhat contradictory regarding the impacts of National Board Certification. Knoeppel (2008) conducted a study to determine the significant mean differences for the degree of student achievement for schools with various numbers of NBCTs. The researcher designed a study to control for student demographics and other measures of teacher quality. The researcher used an analysis of covariance with a sample of 359 schools in Kentucky. In the study, the researcher formed groups based upon the percent of NBCTs in each school. For example, group one consisted of schools with 2% or less of the teachers being National Board Certified. In an effort to determine the effects of the National Board Certification process on teaching and learning, the researcher controlled for factors such as demographics, average years of teaching experience, major or minor in the content area, and teacher education level. Knoeppel reported that as the percentage of National Board Certified teachers increased, the mean score-on the given assessment increased. Knoeppel reported that results indicated that schools with the highest percentage of NBCTs outperformed schools with fewer NBCTs. Research of this nature suggests that the number of National Board Certified teachers within a school or district influences the degree of student achievement and overall learning within the school. Currently, a

plethora of positive research of this nature exists; however, other views are available regarding the impacts of the certification process.

To determine the influence that National Board Certification has on teaching and learning, one must review both sides of the literature. A copious amount of research indicates that National Board Certification positively influences student learning; nonetheless, other studies exist that suggest that the impact is marginal and in isolated cases. Harris and Sass (2008) conducted a 4-year study in Florida. The study analyzed the impacts of National Board Certified teachers at the elementary, middle, and high school levels on student achievement. During this study, the researcher used student achievement data for over 1 million students, nearly 30,000 mathematics teachers, and over 32,000 reading/language arts teachers. The researchers reported that—regardless of level of certification or years of experience—no significant differences in effectiveness existed between NBCTs and non-NBCTs. Similarly, Cavaluzzo (2004) studied the effects of National Board Certification on student achievement. Cavaluzzo reported that students of NBCTs might expect to gain between 7 to 8% of one standard deviation more than non-NBCTs. Although Cavaluzzo acknowledged that statistically significant differences between NBCTs and other teachers were present, the effect sizes were reported as small—between 0.1 and 0.3. These studies suggested that although National Board Certification may have an influence on student achievement, the effects are minimal. These studies raise the question of how extraneous variables impact the degree of influence that National Board Certification has on teacher quality and student achievement. Knowing this, it is important that researchers analyze the effects of

variables that result in possible impacts on the National Board Certification process and how that process influences student learning.

Teacher-Level of Certification

The impacts of National Board Certification are present at all grade levels. More teachers are pursuing National Board Certification today than in previous years. Research studies exist that evaluate the effects of the National Board Certification process on enhanced teacher quality, professional development, and increased leadership opportunities for teachers at the elementary, middle, and secondary levels. Currently, research suggests that NBCTs out-perform non-NBCTs on indicators of teaching expertise and are highly likely to apply learning from the certification process into the classroom (Bond, Smith, Baker, & Hattie, 2000; Lustick & Sykes, 2006). In fact, NBCTs are reported to demonstrate a strong level of performance in their content fields and possess a high level of rigor and classroom management as a result of the professional development earned through the certification process (McColskey & Stronge, 2005). Lustick and Sykes (2006) reported a strong increase in the professional learning of NBCTs throughout the certification process. In fact, the researchers reported that candidates became more reflective practitioners as a result of the process and demonstrated areas of growth in the knowledge and skills necessary to promote teaching and learning. The researchers continued that nearly 40% of the NBCTs interviewed reported dynamic learning in that there was immediate classroom implementation of the learning acquired during the certification process. Although studies support the idea that NBCTs gain quality professional development that enhances student-learning, contradictions within the research exist.

Research is available that demonstrates the effects of National Board Certified teachers at both the elementary and secondary levels. Cavalluzzo (2004) examined 108,000 student records to determine if professional characteristics were related to student achievement in mathematics. Cavalluzzo reported that regardless of various professional characteristics such as level of certification and experience, National Board teachers continued to make statistically significant academic impacts on their students. Likewise, Sato, Wel, and Darling-Hammond (2008) reported a study that analyzed the influence of the National Board Certification process. The researchers used a three-year longitudinal, comparison group design study. The purpose of the study was to evaluate teachers' assessment practices through the National Board professional development. The 3-year study allowed researchers to study the assessment practices of teachers prior to entering the National Board Certification process, while involved in the certification process, and after completion of the certification process. The researchers tracked the assessment practices of nine National Board candidates at the middle and high school level and compared them to seven similarly experienced teachers that were not pursuing National Board Certification.

The researchers used rubric-based scoring to evaluate video-taped lessons, student work, student and teacher surveys, etc. The surveys, student work, and video tapes were included in a data pack and completed by each teacher twice a year. The rubric-based scoring allowed the researchers to evaluate the differences between the National Board and non-National Board participants during the 3 years. The rubrics had an overall reliability of .963. The rubric evaluated the use and the impacts of the assessment process on student achievement. The researchers indicated that the initial mean score was 2.62 as

compared to 2.90 for NBCTs. During the 3 years, the National Board participants increased their average score by 0.5 points on the rubric and by 1.0 point on the views of assessment and on the quality and coherence of the assessment measures within the classroom (Sato et al., 2008). The non-National Board participants failed to increase in any area by as much as 0.5 points. However, one teacher in the non-National Board group did experience gains during the 3-year study. During the study, this teacher participated in professional development with experiences similar to the National Board Certification process. Although these gains were not as significant as the ones made by the NBCTs in the study, the results suggested that similar professional development experiences might lead to gains in student achievement.

Overall, this study suggested that NBCTs made greater gains in the use of assessments within the mathematics and science classrooms at the middle and high school levels (Sato et al., 2008). Furthermore, the study suggested that NBCTs were able to make these gains and sustain them over time as opposed to the non-National Board teachers. This study evaluated the impacts of National Board Certification on middle and secondary mathematics and science teachers; however, similar results are found in studies regarding early childhood classrooms.

An extensive body of research exists regarding the influence that National Board Certification has on early childhood students. Vitale (2008) reported a study that evaluated the effects of National Board Certification on the performance of 162 third-grade students in literacy and mathematics. Eight classroom teachers participated in this study. Four of the teachers were NBCTs. The remaining classroom teachers were similar in level of experience and certification to the NBCTs in the study. Vitale (2008) used an

independent-samples *t*-test to assess whether the means of the two groups were statistically different. In order to measure the level of student achievement, the researcher used the Florida state assessment to determine the degree of student achievement in both literacy and mathematics. The researcher reported that although means were generally higher for students with NBCTs, there were only significant differences for mathematics scores of students in third grade. The researcher reported that results obtained from the data analysis failed to support the hypothesis that National Board Certification was related to the achievement of third graders on the Florida state assessment. Although the *t*-test demonstrated that National Board Certification was associated with higher levels of achievement for third graders in mathematics, when factors such as teachers' level of experience and student demographics were introduced into the model, no significant effects on student achievement were documented (Vitale, 2008). Knowing this, the need exists for additional research regarding the impacts of National Board Certification upon enhanced teacher quality, increased leadership opportunities, and professional development when factors such as teacher level of certification and years of experiences are evaluated.

The various research studies suggest that National Board Certification has some degree of impact on student achievement regardless of the level of teacher certification. In regard to leadership, Sykes et al. (2006) conducted a study that explored the effects of NBCTs on individual schools relative to the degree of leadership involvement available. The study included teachers at 1,500 schools. The researchers concluded that nearly all teachers were involved in some degree of leadership activities. Furthermore, the study suggested that NBCTs serve as a mentor to their peers significantly more often than non-

NBCTs. Nonetheless, the educational leader within the building often determines the degree of leadership opportunities afforded to the NBCT.

Teacher-Level of Experience

Today, many educational leaders value experienced teachers in the classroom. Research suggests that National Board Certification contributes to maintaining experienced teachers longer (Sykes et al., 2006). The researchers reported that in Ohio, 51.9% of NBCTs plan to stay in teaching as long as possible compared to only 37.5% of all of the state teachers. They observed that similar results were found in South Carolina. These statistics suggest that National Board Certification increases the likelihood that teachers will remain in the classroom and gain the knowledge and skills that are associated with quality years of experience. Rice (2010) noted that teachers demonstrate professional growth rapidly during the first few years of teaching; however, growth is minimal after that time. Knowing this, the impacts of professional training such as National Board Certification may vary as individuals bring different levels of experience, knowledge, and skills to the certification process.

There are numerous factors that impact teacher quality and effectiveness. Among these factors, years of experience may have the largest impact on the level of success in the classroom (Educational Testing Service, 2004) Although research is mixed, the degree of influence that National Board Certification has on teachers with various years of experience is uncertain. Bond et al. (2000) compared a group of NBCTs with non-NBCTs to determine the level of performance in 13 identified features of teaching expertise. These features included items such as level of rigor, depth of subject matter represented, and teacher feedback to students. The researchers reported that the NBCTs

outperformed the other, more experienced, non-NBCTS in all 13 categories. The researchers observed that statistically significant differences occurred in 11 of the 13 categories. In order to adequately determine the degree of learning acquired by the teacher through the certification process, one must measure the level of teacher improvement or growth based upon the initial knowledge of the teacher. Knowing that teacher experience partially defines the initial knowledge level of the teacher, one must be aware of these experiences in order to have an adequate baseline to determine future growth. Furthermore, educational leaders must be informed regarding which specific characteristics, such as experience, are most predictive of student achievement (Clotfelter, Ladd, & Vigdor, 2007). As a result, years of experience may impact the perception of National Board teachers regarding how the certification process impacts professional learning and teacher growth.

However, more experience does not always mean the teacher possesses the knowledge, skills, and dispositions needed to be a highly effective teacher. Ogunkola and Archer-Bradshaw (2011) reported a study that investigated instructional assessment practices for secondary science teachers in Barbados. The researchers investigated the degree that teacher quality indicators predicted the effectiveness of instructional assessment practices. The study sought to determine if statistically significant differences existed in the instructional assessment practices for teachers based upon gender and teacher quality indicators such as teaching experience, professional qualification, and teacher academic qualification. The researchers used a random sample of 55 science teachers from nine secondary schools. The researchers surveyed the participants and used linear, multiple, and binary logistic regression to determine results. The researchers

reported no statistically significant differences between the mean scores of the teachers' reported instructional practices based on gender, teaching experience, level of professional qualification, or level of academic qualification. The researchers reported that gender alone had a greater impact on the instructional assessment practices than the other independent variables. However, the joint effect of the independent variables was statistically significant. Within this study, years of experience alone did not result in more efficient instructional assessment practices. However, years of experience and other teacher quality indicators together did suggest the use of more efficient instructional assessment practices.

With the plethora of research available, the question remains how years of experience impact the effects of National Board Certification on teaching and learning. According to research on the efficacy of NBCTs, findings support the idea that future NBCTs have a positive influence on student achievement. (Blazer, 2010). Knowing this, research suggests that future NBCTs are generally more effective in the classroom prior to certification. Since teachers undertake the certification process at various times in their careers, the degree of enhanced teacher effectiveness varies. Berliner (1992) suggested that novice teachers are less likely to be adequate teachers than experienced teachers. Berliner asserted that through experience, teachers gain the knowledge and skills of reflection necessary to improve classroom practices that yield an increase in student achievement. Although research exists, results are mixed in regard to the effect that years of experience have on the impacts of National Board Certification. Research suggests that teacher growth plateaus or even begins to decrease as years of experience increase;

however, studies argue that National Board Certification promote teacher professional growth and overall student achievement regardless of prior knowledge and experiences.

Geographic Location

Geographic locations influence the philosophies, culture, and ideologies regarding education. Across the United States, there are vast differences in the standards, expectations, and quality of education within public schools. Similarly, differences exist within states. In many cases, differences that occur within individual states are reflections of communities, the socio-economic status, and the opportunities that are available in the area. In Arkansas, there are significant differences in the degree of opportunities available to public schools located in the various geographic regions.

Educational leaders must work to maintain high-quality teaching and learning in the classroom. Many public schools face the dilemma of recruiting and maintaining high-quality teachers in low-performing regions (Berry, Rasberry, & Williams, 2007). Today, many schools work to attain high-quality teachers through financial incentives. Financial incentives are essential to high quality teachers in any school, especially high needs schools that are at risk of academic failure (Berry et al., 2007). According to Figlio (2002), many schools use higher salaries to attract higher-quality teachers. Financial incentives are appealing to teachers; however, the evidence of strong leadership, similar philosophical views on teaching and learning, and supportive working conditions are fundamental in attracting high-quality teachers (Berry et al., 2007). Humphrey et al. (2005), reported that the work environment often influences the impact of high-quality teaching through NBCTs. The researchers observed that retention of NBCTs in low-performing schools was often low due to the fact that educational administrators in these

regions may have limited knowledge regarding National Board Certification. They noted that leaders in these regions have limited knowledge regarding how to use NBCTs within the school; therefore, high-quality teachers fail to survive in these environments for long periods of time.

In an effort to determine what changes would be necessary to secure more NBCTs in high-need geographic regions, teachers identified policies or changes in practice that would be beneficial to recruit high-quality teachers. According to Berry et al. (2007), 2,000 NBCTs' in North Carolina, Ohio, Oklahoma, South Carolina, and Washington identified 142 policy recommendations that are needed to address the lack of high-quality teachers in geographic regions with high-risk public schools. The recommendations of the NBCTs included the need to transform the teaching and learning conditions in high-needs schools, prepare and support teachers for the challenges that are present in high-needs schools, and help administrators learn to use NBCTs as resources within the school (Berry et al., 2007). Belden (2002) commented that teacher leadership is an area in which many NBCTs fail to show significant improvement after certification. In many cases, this is a result of lack of opportunities; consequently, in some cases it leads to high levels of teacher turn-over. This high level of teacher turn-over appears to be more prevalent in certain areas or geographical regions within each state.

The geographic location may affect the perceptions of NBCTs on the impact their teaching has on student achievement. Plecki, Elfers, St. John, and Finster (2010) asserted that more NBCTs today are teaching in geographic regions with lower academic achievement than in the past. Knowing this, researchers have conducted studies to evaluate the perceptions of the impact the National Board Certification process has on

improved teaching and learning in these schools. In fact, Nesmith (2011), described a study that examined the perceptions of NBCTs on teacher leadership dimensions in geographic regions with high and low-performing elementary schools. The researcher used elementary schools in South Carolina that were classified as either low or high performing. The researcher randomly selected 208 NBCTs in South Carolina to participate in the study. The researcher reported that NBCTs' perceptions of teacher leadership were similar in both high and low performing elementary schools. However, significant differences were reported in regard to NBCTs' rating of the level of support for teacher leadership opportunities within the school. This research suggests that low-performing schools may not offer as many leadership opportunities for teachers. Knowing this, the quality of the impact that NBCTs have in low-performing schools may be affected by the degree of opportunity provided within the school. Cast (2014) conducted a state-wide study to determine the perceived impact of the National Board Certification process on Arkansas teachers. Cast reported data from the 1,177 participants and concluded that the National Board Certification process highly affected professional practice and moderately affected students' achievement and professional leadership. These results suggested that NBCTs perceive positive impacts on various areas of their practice regardless of location within a state.

Although more NBCTs are teaching in low-performing schools, most are attracted to geographic regions where student performance is higher. In these regions, teachers often find more resources and opportunities to grow and lead professionally. However, the initial level of student achievement and teacher professionalism within the school may affect the degree of influence that the certification process has on teachers and

student achievement. For example, NBCTs in schools with high levels of student achievement may not see the same degree of influence as NBCTs in lower performing schools. Plecki et al. (2010) reported a study that examined the influence of National Board Certification on reading and mathematics achievement for students in those schools. The study analyzed the mobility patterns of NBCTs with non-NBCTs in Washington schools. The researchers reported a 9% difference in reading and a seven-point difference in the mathematics achievement of students taught in schools with higher percentages of NBCTs. Furthermore, the researchers reported that NBCTs had higher rates of mobility from one school to another than non-NBCTs; however, fewer NBCTs left the workforce from one year to another. Marvel, Lyter, Peltola, Strizek and Morton (2006) reiterated the fact that fewer NBCTs leave the workforce, and the annual teacher retention rates in Washington are typical of other states in the nation. Knowing this, the question remains regarding the factors that contribute to high teacher mobility for NBCTs and how the geographical location of the school affects the perception of influence the certification process has on learning. Also, factors within the school that are common to specific geographic regions may have the greatest influence on teacher perceptions related to the degree of impact the National Board Certification process has on teaching and learning.

CHAPTER III

METHODOLOGY

Education has undergone many changes over the last century. Presently, classrooms have more resources than ever before. Teachers use research-based strategies to help meet the needs of all students. Classrooms are rigorous, and more students graduate high school better prepared for college and career opportunities. Today, more teachers have access to professional development opportunities such as National Board Certification that target the professional growth of teachers. Although these changes are characteristics of schools today, they are a product of the educational reform and decisions made over the last several centuries (Gutek, 1995). Over the last century, educational leaders have placed more emphasis on the quality of education. Furthermore, educational leaders have established that high-quality learning is largely related to the quality of teaching within the classroom (Ferguson, 1998; Hanushek et al., 1999). Knowing this, educational leaders and state legislatures have worked to implement programs that strive to enhance teacher quality. One of these endeavors has been the implementation of the National Board Certification process.

In an effort to improve teacher quality, educators continue to seek additional degrees, gain additional knowledge through experience, and seek professional development opportunities that help to fine-tune their skills and ultimately improve their teaching and learning. Today, more than 100,000 educators have achieved National

Board Certification (NBPTS, 2013). Currently, a plethora of research supports the claim that National Board Certification improves teacher practices and overall student achievement (Goldhaber & Anthony, 2004; Vandevoort et al., 2004). Nonetheless, research exists purporting that the certification process results in marginal impacts on teaching and learning (Cavaluzzo, 2004; Harris & Sass, 2008). Since research is mixed, continuous studies are needed to better determine the impacts that National Board Certification has on teaching and learning.

Research is available that support the idea that pre-existing factors may influence a teacher's perception regarding the impact of National Board Certification. Teacher level of certification and years of experience are variables that might influence the degree of learning acquired from the National Board Certification process. Although other variables exist, level of certification and years of experience are factors that help define the degree of knowledge and skills the teacher has prior to the certification process. Consequently, positive impacts from the certification process are—in part—affected by the level of knowledge and expertise the teacher has prior to certification. The geographical location of the teacher often influences the experiences of the candidate. For example, teachers who work in low socio-economic regions may have limited access to supplies and opportunities for their students. In addition, teachers in these schools have gained experiences in a school whose culture and climate is highly different from other geographic regions. Knowing this, additional research is needed to determine how factors such as level of certification and years of experience affect teachers' perceptions regarding the impacts of the National Board Certification process on enhanced professional development, teacher quality, and increased leadership opportunities.

This study evaluated the perceptions of NBCTs regarding the influence of the National Board Certification process on teacher professional development, enhanced teacher quality, and increased leadership opportunities. The research hypotheses are as follows:

1. No significant differences will exist by experience and certification level on the perceptions of Arkansas NBCTs on the National Board Certification process professional development.
2. No significant differences will exist by experience and certification level on the perceptions of Arkansas NBCTs on enhanced teacher quality as a result of the National Board Certification process.
3. No significant differences will exist by experience and certification level on the perceptions of Arkansas NBCTs on increased leadership opportunities as a result of the National Board Certification process.

The researcher used the following research questions:

1. Specifically, how do you think student achievement within your classroom has benefited from your becoming a NBCT?
2. Specifically, how do you think student achievement within your school has benefited from your becoming a NBCT?

Research studies are imperative to enhance educational practices within public schools. The following chapter describes a research study conducted to examine the impacts that level of certification and years of experience have on teachers' perceptions regarding the impacts of the National Board Certification process on teaching and learning. In this chapter is a discussion of the research design used to conduct the study.

Furthermore, this chapter includes a description of the sample population, instrumentation, data collection procedures, and analytical methods used within the research study. Finally, this chapter also includes an introduction to possible limitations to the research study that might impact the results of the study. These limitations must be considered when interpreting results to understand how similar studies may vary.

Research Design

To address the research hypotheses and attempt to answer the research questions, the researcher developed a quantitative study. Although the study is quantitative, a qualitative section exists to include personal comments regarding the effects of the National Board Certification process on teaching and learning. This research study is causal-comparative by design. According to Salkind (2010), causal-comparative studies are often used in educational research; the purpose of this design is to find a relationship between variables after an event has occurred. This non-manipulation research design is non-experimental in nature. Since this study is non-experimental and is designed with independent variables--each with two levels--the researcher will use a 2 x 2 factorial research design.

Sample

The number of NBCTs continues to increase across the nation. Currently, there are 110,447 NBCTs in the United States. Of this population, 2, 777 or 2.5% are located in Arkansas. The researcher received an Excel data file and permission for use from Barbara Culpepper, the NBPTS program advisor at the Arkansas Department of Education (Appendix A). The data file contained information regarding the 2,530 NBCTs who were employed educators with updated accounts at the Arkansas Department of Education.

The remaining 247 NBCTs were retired, deceased, no longer working in education, or had failed to update their contact information through the Arkansas Department of Education (n.d.). This data file included information such as each candidate's name, email addresses, the level of certification, county of residence, and the place of employment. The researcher used this file to determine the geographical representation of the NBCTs in Arkansas. Furthermore, the researcher used this file to complete the stratified-random sampling process and obtain the email addresses necessary to send the survey instruments.

The NBCTs in Arkansas were located in all geographical regions throughout the state; however, a large population was found in Northwest and Central Arkansas. For this study, the researcher identified five geographical regions based upon large cities within the state. The researcher identified these regions as Northwest, Northeast, Central, Southwest, and Southeast. The purpose of the geographical regions was to use stratified random sampling to select the participants. By doing this, the sample would better reflect the general population of NBCTs throughout the state. Within the geographical regions, the researcher used Stat Trek, a randomization program, to randomly select 550 participates or 21.7% of the active NBCT population in Arkansas. Table 1 displays the geographical representation of the sample compared to the total population of NBCTs in Arkansas.

Table 1

Geographical Representation of Sample Population by Region

Geographical Region	Total *N* of NBCTs	*n* of NBCTs Surveyed	% of NBCTs Sampled
Northwest	975	200	20.5
Northeast	371	70	18.9
Central	767	160	20.8
Southwest	204	60	29.4
Southeast	213	60	28.2
Total	2,530	550	21.7

As Table 1 above indicates, of the 975 NBCTs located in the Northwest region of Arkansas, 200 or 20.5% were selected to participate in the study. Similarly, 70 or 18.9% of the 371 NBCTs located in the Northeast region were selected. Within Central Arkansas, 160 or 20.8% of the 767 NBCTs located in the region were asked to complete the survey instrument. In the Southwest region, 60 or 29.4% of the 204 NBCTs received an invitation to participate in the survey. Finally, 60 or 28.2% of the 213 NBCTs in the Southeast region of Arkansas receive the survey instrument. The numbers selected from each region were determined based upon the percent of NBCTs within the region compared to the state. All of the NBCTs within the sample population had a minimum of 3 years of experience, as this is a requirement for National Board candidacy. Also, the population was equally represented in regard to the level of certification, 275 or 50% for both elementary (K-6) and secondary levels (7-12).

Instrumentation

In order to evaluate the effects of a teacher's level of certification and years of experience on the perceptions of the impact the National Board Certification process had on professional development, teacher quality, and increased leadership opportunities, the researcher used a survey instrument (Appendix B). The survey instrument was modeled after one used by Belden (2002) to capture the NBCTs' perceptions of how the certification process influenced teacher growth and student achievement in various areas. The researcher contacted Belden and obtained permission to use items from the survey in this study (Appendix C). Belden reported no statistical information regarding the initial survey. The researcher adapted the survey instrument by omitting questions and adding additional items that would be necessary for this study.

The final survey instrument used in this study consisted of 35 items. The survey included an informed consent agreement that gave the researcher permission to use the data for the purpose of this study (Appendix D). The design of the survey instrument was such that participants provided information regarding demographics and the perceptions of impact the National Board Certification had on teacher professional development, teacher quality, and increased leadership opportunities. The demographic section of the instrument consisted of six items. These items included information regarding teacher level of certification, years of experience, geographic location where the participant resides, and status on the completion of the National Board recertification process.

To gain knowledge regarding the perception of impact the National Board Certification process had on various areas, the researcher used a Likert scale for the majority of the remaining questions. These questions asked the participants to rank their

perceptions regarding the criteria as 1—Strongly Agree, 2—Agree, 3—Undecided, 4—Disagree, or 5—Strongly Disagree. The instrument included Questions 7 through 15 to determine the teachers' perceptions of impact the National Board Certification process had on professional development. The researcher designed these questions to determine how teachers perceived the certification affected their professional growth, knowledge, and skills.

The following section—Items 16 through 25—included questions regarding teachers' perceptions of the National Board Certification process on teacher quality. The purpose of these questions was to determine how the participants perceived the certification process affected classroom practices and performance. Within this section, the researcher asked questions regarding the impact of the certification process on the classroom teacher's ability to use assessment data, differentiate instruction, and engage students.

To evaluate the teachers' perceptions of the National Board Certification process on increased leadership opportunities, the researcher included Items 26 through 33. These items consisted of questions to determine teachers' perceptions regarding the influence of the certification process on leadership skills, opportunities, and experiences, both within and outside of the public school. This section included questions to determine if the certification process had led to additional educational duties or roles for the educator.

The final section of the survey instrument—Items 34 and 35—were open-ended questions to gain specific information regarding the teachers' perceptions of the certification process. These questions allowed the participant to cite specific examples of how the certification process influenced the classroom and the school. These questions

were necessary to provide a strong evidence piece regarding teachers' perceptions of the certification process.

Once the researcher had drafted, edited, and finalized the survey instrument, it was emailed to 20 random NBCTs as a pilot test. The NBCTs were currently employed teachers in area schools. The researcher allowed the participants 3 weeks to return the survey. After two email reminders, the researcher received 16 or 80% of the surveys. The researcher used the feedback to determine if items were unclear or unreliable. As a result of the pilot test, the only change was within the demographic section. Within this section, Item 6 stated, "If you have not completed the National Board recertification process, do you plan to?" During the pilot test, many participants left this item blank or made notes stating they were unsure if they would participate in the recertification process. As a result, on this item, the researcher added *undecided* as an option for participants.

In order to determine the reliability of the survey instrument, the researcher analyzed the data to check for abnormalities, outliers, and missing cases. The researcher conducted statistical tests to determine the reliability of the survey instrument. A Cronbach's Alpha value was calculated for the series of questions regarding the teachers' perceptions of the National Board Certification process on enhanced professional development, increased leadership opportunities, and teacher quality; the values were .913, .837, and .924 respectively. These values indicate a high level of internal consistency and predict that the items within each of the three groups are reliable questions (Morgan, Leech, & Barrett, 2011). Knowing that a high-level of reliability exists, the survey items were more likely to adequately measure the teachers' perceptions

regarding the impacts of the National Board Certification process on teacher professional development, enhanced teacher quality, and increased leadership opportunities.

Data Collection Procedures

Data collection is essential to the research process. The researcher was solely responsible for the data collection in this study. Data were stored and secured on the researcher's computer. The researcher received IRB approval in January 2015 (Appendix E). The researcher collected data from the survey instrument during the month of April 2015. The researcher selected this month to collect data as it did not interfere with days that teachers might be away from their computer during spring vacation and because it would provide sufficient time for teachers to complete the survey prior to leaving school for the summer. The survey opened on March 30, 2015. The researcher used Survey Monkey ™ and emailed the survey instrument to the selected participants. The email included an invitation letter that explained the purpose of the research study and provided informed consent for the participant (Appendix F). The survey was opened for the entire month of April. The researcher used Survey Monkey™ to send three reminders to the selected participants in an effort to increase the level of participation.

Although the researcher worked to maximize participation, variables existed that might have influenced the data collection process. First, the level of participation may have been impacted by changes in email addresses. Since the researcher used the data file given by the Arkansas Department of Education (n.d.), any changes in a NBCT's email address might have resulted in a reduced response rate. Furthermore, the district servers may have blocked some of the surveys. Knowing this, it is possible that some of the 550 individuals did not receive the survey request.

In addition, the data file received from the Arkansas Department of Education (n.d.) contained the information of all NBCTs in Arkansas. Since the researcher used this list, it is possible that the researcher sent the survey to teachers that are retired, no longer working in education, relocated to another school, or even deceased.

Analytical Methods

The researcher used the Survey Monkey™ program to collect and analyze the survey data. The researcher transferred the survey information to the Excel program. Demographic information and data collected through the short answer items were analyzed and displayed with frequency distribution tables and bar graphs. The analysis and distribution of the demographic and short answer information was necessary to have an accurate understanding of the demographics and specific thoughts of the participants. The demographic data provided a description of the sample population in terms of years of experience, level of certification, geographical location, current position, and status in regards to the National Board Recertification process. The short-answer items provided a specific description regarding the teachers' perceptions of the effects of the certification process on student achievement within the classroom and the school.

In order to conduct statistical analysis, the researcher used SPSS software. The researcher used the software to analyze the data on the survey items that involved a Likert scale. To account for individuals with missing data, the researcher calculated the mean score of all respondents for the missing item and used that value. By using the mean score, the researcher selected a value that best reflected the entire population and limited the possibility of introducing error within the data reporting. The researcher reported the average score for each of the three sections, items pertaining to enhanced

professional development, teacher quality, and leadership. In addition, the researcher reported the group sums and standard deviations in each of the three major groups. Furthermore, the researcher conducted a two-way or factorial ANOVA to address each of the research hypotheses. The researcher checked the assumptions of independent observations, homogeneity of variances, outliers, and normal distributions of the dependent variable for each group. In order to determine normality, the researcher checked and analyzed data for skewness, kurtosis, and Shapiro-Wilk values. Also, the researcher reported a Levene's test to determine homogeneity of variances. To determine statistical results for each hypothesis, the researcher determined to reject the null hypothesis based upon a level of significance of .05. However, because multiple statistical tests were used, which increases the likelihood of a Type I error, a Bonferroni correction was used to minimize the possible error. Therefore, given that three tests were conducted, the adjusted alpha used to reject the null hypothesis was .05/3 or alpha = .017. In regards to analysis, the researcher coded the data collected for the four hypotheses according to teacher level of certification and years of experience. The researcher used the following codes for each group: teacher level of certification (1 = K-6, 2 = 7-12) and teacher years of experience (1 = 3-10, 2 = 11 or more).

The researcher analyzed the hypotheses to report both interaction and main effects of the independent variables. To address Hypothesis 1, a 2 x 2 factorial analysis of variance (ANOVA) was conducted using teacher level of certification (K-6 or 7-12) by years of experience (3-10 or 11 or more) as the independent variables and NBCT's perceptions of the National Board Certification process on professional development as measured by the total score on the survey instrument as the dependent variable. For

Hypothesis 2, a 2 x 2 factorial ANOVA was conducted using teacher level of certification (K-6 or 7-12) by years of experience (3-10 or 11 or more) as the independent variables and NBCT's perceptions of the National Board Certification process on enhanced teacher quality as measured by the total score on the survey instrument as the dependent variable. Again, for Hypothesis 3, a 2 x 2 factorial ANOVA was conducted using teacher level of certification (K-6 or 7-12) by years of experience (3-10 or 11 or more) as the independent variables and NBCT's perceptions of the National Board Certification process on increased leadership opportunities as measured by the total score on the survey instrument as the dependent variable.

In addition to the three research hypotheses, the researcher used descriptive statistics to report findings for the two qualitative research questions. Here, the researcher collected survey responses, categorized responses into groups, and used descriptive statistics to report the frequency that various answers were reported. The researcher used these findings to provide specific examples relating how individual NBCTs perceived that the certification process influenced their classroom and school.

Limitations

Limitations are present in all studies. These limitations include barriers that are beyond the control of the researcher. This study had several limitations that may have implications regarding impacts of the research findings. Furthermore, these limitations may be useful in designing future research studies of this nature. Knowing these limitations may help make sense of the data and the findings within the research study. Regardless of the severity of the limitations, all factors are needed to help one accurately interpret results and draw conclusions.

First, the research design—causal-comparative—serves as a limitation in that it is non-experimental. Causal-comparative studies are conducted as an alternative to experiments (Wallen & Fraenkel, 2011). In causal-comparative studies, researchers examine existing circumstances and avoid the manipulation of variables; thus, the research design itself serves as a limitation to the study.

Furthermore, the study is limited by the number of individuals that completed the survey instrument. In this study, the researcher randomly selected participants from a directory with all of the active NBCTs in Arkansas. This list may have included individuals that failed to receive the survey instrument due to uncontrollable circumstances. In addition, various results might exist if the study included NBCTs in additional states.

Finally, the perceptions of the National Board Certification process varies from one location to another. Knowing this, initial perceptions regarding the certification process exist as a result of the school climate, culture, and past experiences. These pre-existing thoughts and ideas may serve as a limitation to this study. This limitation would be reduced if similar studies were performed in various states and regions.

CHAPTER IV

RESULTS

The purposes of this quantitative research study were four-fold. First, the purpose of this study was to determine the effects by teacher level of certification and years of experience on teachers' perceptions of the effects the National Board Certification process had on increased professional development. Second, the purpose of this study was to determine the effects by teacher level of certification and years of experience on teachers' perceptions of the effects the National Board Certification process had on enhanced teacher quality. Third, the purpose of this study was to determine the effects by teacher level of certification and years of experience on teachers' perceptions of the effects the National Board Certification process had on increased leadership opportunities. Fourth, the purpose of this study was to measure, qualitatively, the effects the National Board Certification process had on enhancing student achievement within the classroom and school. Prior to running the necessary statistical analysis, the researcher checked both the appropriate assumptions of normality and homogeneity of variances.

The study used NBCTs in Arkansas. In order to obtain a sufficient number of responses, the researcher surveyed 550 NBCTs. Of the surveyed population, 295 or 53.6% completed the survey. Of the 295 completed surveys, there were four incomplete; thus, the researcher considered these responses invalid. The removal of these surveys

resulted in 291 eligible surveys for the study. Of the 291 participants, 167 or 57.4% were classified as elementary certified (K-6), and 124 or 42.6% were classified as secondary certified (7-12).Table 2 displays the geographical representation of the surveys completed compared to the total population of NBCTs in Arkansas.

Table 2

Geographical Representation of Completed Surveys by Region

Geographical Region	Total *N* of NBCTs	% of NBCTs	*N* of Issued Surveys	*n* of Returned Surveys	% of Total Returned Surveys
Northwest	975	38.5	200	113	38.8
Northeast	371	14.7	70	36	12.4
Central	767	30.3	160	89	30.6
Southwest	204	8.0	60	37	12.7
Southeast	213	8.5	60	16	5.5
Total	2,530	100.0	550	291	100.0

Table 2 above displays the fact that 38.5% of all Arkansas NBCTs were located in the Northwest region of the state. Of the 975 NBCTs located in this region, 200 received an invitation to participate in the research study. Of the 200 invited participants, 113 individuals completed the survey; this represents 38.8% of the 291 survey instruments received. In comparison, 30.3% of all Arkansas NBCTs were located in the Central region of the state. Of the 767 NBCTs located in this region, 160 received an invitation to participate in the research study. Of the 160 invited participants, 89 individuals

completed the survey; this number represents 30.6% of the 291 survey instruments received. By comparison, 14.7% of all Arkansas NBCTs were located in the Northeast region of the state. Of the 371 NBCTs located in this region, 70 received an invitation to participate in the research study. Of the 70 invited participants, 36 individuals completed the survey; this value represents 12.4% of the 291 survey instruments received. The Southwest region represented 8.0% of all Arkansas NBCTs. Of the 204 NBCTs located in this region, 60 received an invitation to participate in the research study. Of the 60 invited participants, 37 individuals completed the survey; this number represents 12.7% of the 291 survey instruments received. The final region within the state, the Southeast, represented 8.5% of the Arkansas NBCT population. Of the 213 NBCTs in this region, 60 received an invitation to participate in the research study. Of the 60 invited participants, 16 individuals completed the survey, representing 5.5% of the 291 survey instruments received.

Hypothesis 1

Hypothesis 1 stated that no significant difference will exist by experience and certification level on the perceptions of Arkansas NBCTs on the National Board Certification process professional development. The researcher checked the assumptions of independent observations, homogeneity of variances, outliers, and normal distributions of the dependent variable for each group. The skewness and kurtosis values were slightly outside of the 1.0 and -1.0 range. Through the analysis of a box and whisker plot, the researcher identified eight possible outliers. The removal of these possible outliers failed to yield significant changes in the results. In addition, the ANOVA is a robust statistical test that accounts for possible abnormalities within the data (Morgan et al., 2011).

Knowing this, the researcher decided to leave all possible outliers in the sample population. In addition, the researcher used a Shapiro-Wilk test to check for normality; with $p < .05$ for each group, the results indicated that the data possessed some abnormalities across all groups; however, the robustness of the ANOVA accounts for any abnormalities that exist (Morgan et al., 2011). The design of the study was such that the assumption of independent observations was met; no subject contributed scores in more than one group. The Levene's test, $F(3, 287) = 0.95$, $p = .416$, indicated that homogeneity of variances had not been violated, again meeting the necessary assumption for statistical testing.

The researcher used the sample population and SSPS software to determine the means of the group sums and standard deviations. The researcher used the means of the group sums and standard deviations to determine the perceptions of Arkansas NBCTs on the perceived impacts the National Board Certification process had on acquired professional development. Table 3 displays the means of the group sums and standard deviations.

Table 3

Descriptive Statistics for Acquired Professional Development by Teacher Certification and Years of Experience

	3-10 Years			11+ Years			Total		
Certification Level	*n*	*M*	*SD*	*n*	*M*	*SD*	*N*	*M*	*SD*
K-6	84	13.82	5.40	83	13.39	4.46	167	13.60	4.94
7-12	55	13.87	4.17	69	13.96	5.89	124	13.92	5.18
Total	139	13.84	4.90	152	13.64	5.15	291	13.74	5.04

Table 3 demonstrates the perceived impact that the National Board Certification process had on acquired professional development. Arkansas teachers with a certification level of K-6 and 3-10 years of experience ($n = 84$) demonstrate a high level of agreement that positive impacts on professional learning occurred as a result of achieving National Board Certification ($M = 13.82$, $SD = 5.40$). Similar results ($M = 13.39$, $SD = 4.46$) were demonstrated with teachers at the K-6 certification level and 11 or more years of experience ($n = 83$). Likewise, similar results were found at the 7-12 certification level. In fact, teachers at the 7-12 certification level with 3-10 years of experience ($n = 55$) reported similar beliefs ($M = 13.87$, $SD = 4.17$). Slightly higher results ($M = 13.96$, $SD = 5.89$) were discovered with teachers at the 7-12 certification level with 11 or more years of experience ($n = 69$).

This portion of the survey instrument involved nine questions regarding the acquired professional development and professional impact the National Board Certification process had on Arkansas teachers. Since *strongly agree* was coded with a

value of 1 and *strongly disagree* was coded with a value of 5, the mean sum scores could range between 9 and 45. Hence, the above mean sum scores demonstrate a strong agreement that the National Board Certification process positively impacted teachers' professional learning and development.

Figure 1 below shows the mean group sums for items pertaining to teachers' perceptions regarding the effects of the National Board Certification process on acquired professional development as a function of teacher certification level and years of experience. Although results were similar, minor differences were noted in the mean group sum scores. At the K-6 certification level, teachers with 3-10 years of experience reported a mean of 13.82, and the mean for teachers with 11 or more years of experience was slightly lower at 13.39. At the 7-12 certification level, the mean for teachers with 3-10 years of experience was 13.87, and the mean for teachers with 11 or more years of experience was slightly higher at 13.96.

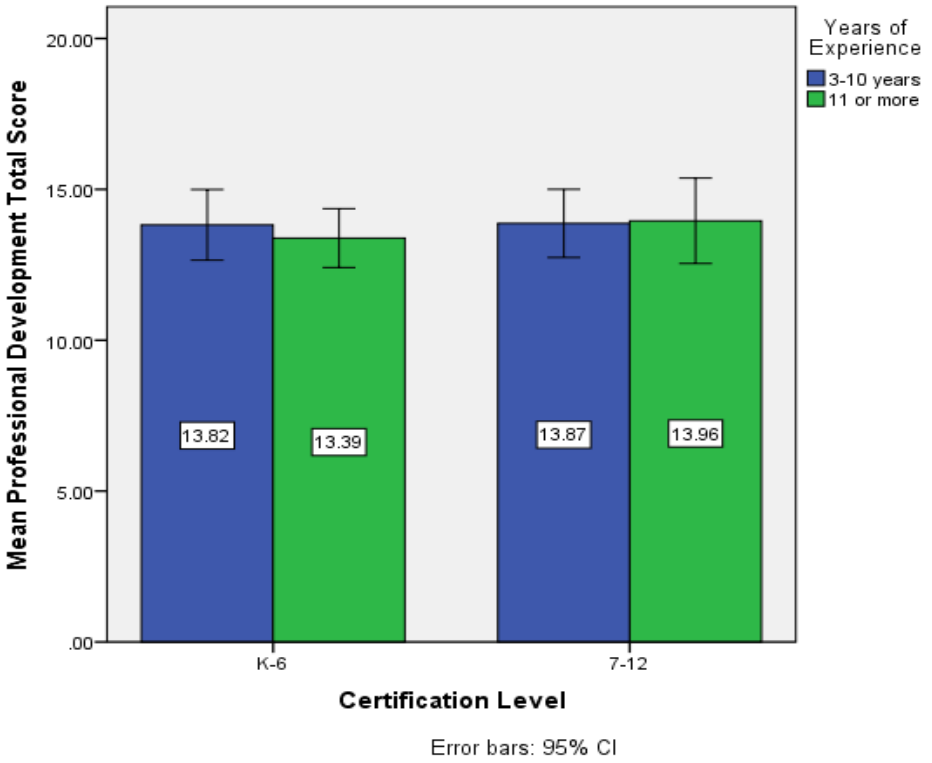

Figure 1. Means for professional development total score as a function of certification level and years of experience.

To test Hypothesis 1, the researcher conducted a 2 x 2 factorial ANOVA to evaluate the effects of certification level by years of experience on the enhanced professional development of teachers as measured by the total score earned on the professional development section of the survey instrument. Table 4 displays the factorial ANOVA results from the survey instrument regarding the perceived impacts that the National Board Certification process had on professional development.

Table 4

Factorial ANOVA Results from Survey Instrument Regarding Increased Professional Development as a Result of National Board Certification

Source	*SS*	*df*	*MS*	*F*	*p*	*ES*
Certification	6.84	1	6.84	0.27	.606	0.00
Experience	2.19	1	2.19	0.09	.770	0.00
Certification*Experience	4.77	1	4.77	0.19	.666	0.00
Error	7352.96	287	25.62			
Total	62296.00	291				

Insufficient evidence existed based on the interaction of the variables to reject the null hypothesis, $F(1, 287) = 0.19$, $p = .666$, $ES = 0.00$. Given there was no significant interaction between the variables of certification and years of experience, the researcher examined the main effect of each variable separately. The adjusted *R* squared of .008 demonstrated that the model explained 0.8% of the variance in teachers' perceptions regarding improved professional development as an effect of National Board Certification based upon teacher certification level and years of experience. The main effect for level of certification was not significant, $F(1, 287) = 0.27$, $p = .606$, $ES = 0.00$. Similarly, the main effect for years of experience was not significant, $F(1, 287) = 0.09$, $p = .770$, $ES = 0.00$.

Hypothesis 2

Hypothesis 2 stated that no significant difference will exist by experience and certification level on the perceptions of Arkansas NBCTs on enhanced teacher quality as a result of the National Board Certification process. The researcher checked the assumptions of independent observations, homogeneity of variances, outliers, and normal distributions of the dependent variable for each group. The skewness and kurtosis values were slightly outside of the 1.0 and -1.0 range. Through the analysis of a box and whisker plot, the researcher identified four possible outliers. The removal of these possible outliers failed to make significant changes in the results. Furthermore, the ANOVA is a robust statistical test that accounts for possible abnormalities within the data (Morgan et al., 2011). Knowing this, the researcher decided to leave all participants in the sample population. Also, the researcher used a Shapiro-Wilk test to check for normality; with $p <$ .05 for each group, the results indicated that the data possessed some abnormalities across all groups. Knowing the robustness of the ANOVA, these abnormalities were not significant enough to impact the results (Morgan et al., 2011). The design of the study was such that the assumption of independent observations was met; no subject contributed scores in more than one group. The Levene's test, $F(3, 287) = 0.67$ $p = .570$, indicated that homogeneity of variances had not been violated, again meeting the assumption for statistical testing.

The researcher used the sample population and SSPS software to determine the means of the group sums and standard deviations. The researcher used the means of the group sums and standard deviations to determine the perceptions of Arkansas NBCTs on

the perceived impacts the National Board Certification process had on enhanced teacher quality. Table 5 displays the mean group sums and standard deviations.

Table 5

Descriptive Statistics for Enhanced Teacher Quality by Teacher Certification and Years of Experience

	3-10 Years			11+ Years			Total		
Certification Level	*n*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
K-6	84	14.85	5.48	83	14.72	5.04	167	14.78	5.25
7-12	55	15.65	4.68	69	16.19	7.25	124	15.95	6.23
Total	139	15.17	5.17	152	15.39	6.17	291	15.28	5.70

Table 5 demonstrates the perceived impact that the National Board Certification process had on enhanced teacher quality. Arkansas teachers with a certification level of K-6 and 3-10 years of experience (n = 84) demonstrate a high level of agreement that positive impacts on enhanced teacher quality was a result of achieving National Board Certification (M = 14.85, SD = 5.48). Similar results (M = 14.72, SD = 5.04) were demonstrated with teachers at the K-6 certification level and 11 or more years of experience (n = 83). In addition, similar results were present at the 7-12 certification level. In fact, teachers at the 7-12 certification level with 3-10 years of experience (n = 55) reported similar beliefs (M = 15.65, SD = 4.68). Slightly higher results (M = 16.19, SD = 7.25) were discovered with teachers at the 7-12 certification level with 11 or more years of experience (n = 69).

This portion of the survey instrument involved 10 questions regarding the enhanced teacher quality that resulted from the National Board Certification process. Since *strongly agree* was coded with a value of 1 and *strongly disagree* was coded with a value of 5, the mean sum scores could range between 10 and 50. Hence, the above mean sum scores demonstrate a strong agreement that the National Board Certification process positively impacted teacher quality. Figure 2 below shows the mean group sums for items pertaining to teacher's perceptions regarding the effects of the National Board Certification process on enhanced teacher quality as a function of teacher certification level and years of experience.

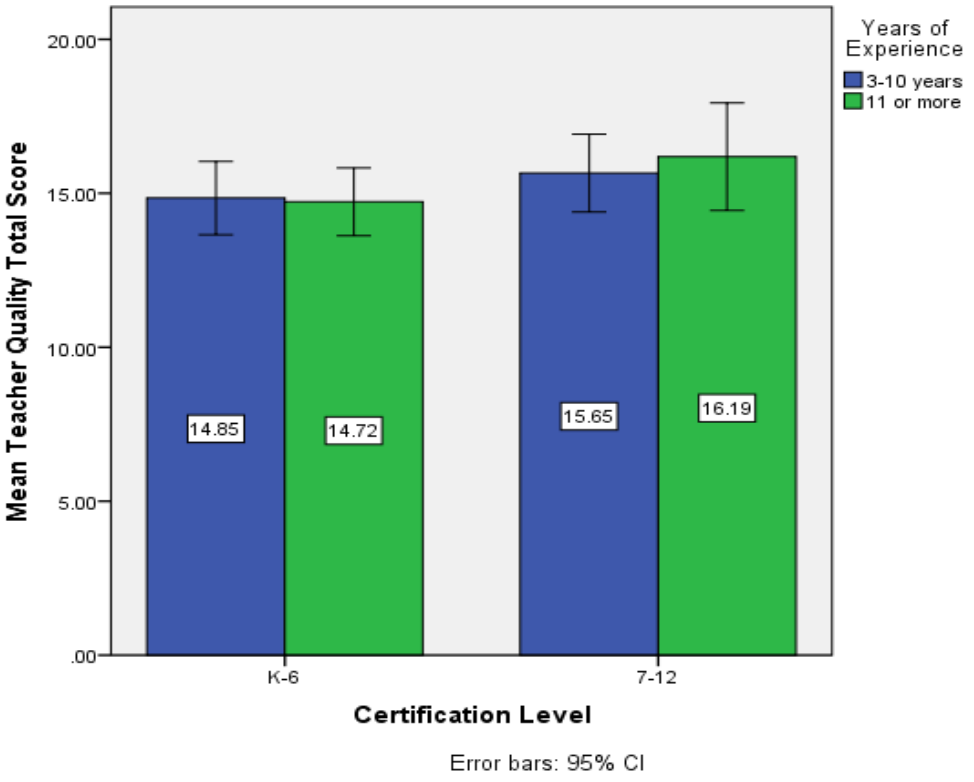

Figure 2. Means for enhanced teacher quality total score as a function of certification level and years of experience.

As demonstrated in Figure 2, although results were similar, minor differences were noted in the mean group sum scores. At the K-6 certification level, teachers with 3-10 years of experience reported a mean of 14.85, and the mean for teachers with 11 or more years of experience was slightly lower at 14.72. At the 7-12 certification level, the mean for teachers with 3-10 years of experience was 15.65, and the mean for teachers with 11 or more years of experience was slightly higher at 16.19.

To test Hypothesis 2, the researcher conducted a 2 x 2 factorial ANOVA to evaluate the effects of certification level by years of experience on the enhancement of teacher quality as measured by the total score earned on the teacher quality section of the survey instrument. The results are displayed in Table 6.

Table 6

Factorial ANOVA Results from Survey Instrument Regarding Enhanced Teacher Quality as a Result of National Board Certification

Source	*SS*	*df*	*MS*	*F*	*p*	*ES*
Certification	91.38	1	91.38	2.81	.095	0.01
Experience	2.99	1	2.99	0.09	.762	0.00
Certification*Experience	7.60	1	7.60	0.23	.629	0.00
Error	9330.60	287	32.51			
Total	77395.00	291				

Insufficient evidence existed based on the interaction of the variables to reject the null hypothesis, $F(1, 287) = 0.23$, $p = .629$, $ES = 0.00$. Given there was no significant interaction between the variables of certification and years of experience, the researcher examined the main effect of each variable separately. The adjusted R squared of .001 demonstrated that the model explained 0.1% of the variance in teachers' perceptions regarding enhanced teacher quality as an effect of National Board Certification based upon teacher certification level and years of experience. The main effect for level of certification was not significant, $F(1, 287) = 2.81$, $p = .095$, $ES = 0.01$. The main effect for years of experience was not significant, $F(1, 287) = 0.09$, $p = .762$, $ES = 0.00$.

Hypothesis 3

Hypothesis 3 stated that no significant differences will exist by experience and certification level on the perceptions of Arkansas NBCTs on increased leadership opportunities as a result of the National Board Certification process. The researcher checked the assumptions of independent observations, homogeneity of variances, outliers and normal distributions of the dependent variable for each group. The skewness and kurtosis values were within the 1.0 and -1.0 range. Through the analysis of a box and whisker plot, the researcher identified five possible outliers. The removal of these possible outliers failed to make significant changes in the results. Furthermore, the ANOVA is a robust statistical test that accounts for possible abnormalities in the data (Morgan et al., 2011). Knowing this, the researcher decided to leave all participants in the data sample. In addition, the researcher used a Shapiro-Wilk test to check for normality; with $p < .05$ for each group, the results indicated that the data possessed some abnormalities across all groups. Since the ANOVA is a robust statistical test that has the

ability to take into consideration any abnormalities within the data, these variations were not significant (Morgan et al., 2011). The design of the study was such that the assumption of independent observations was met; no subject contributed scores in more than one group. The Levene's test, $F(3, 287) = 1.01$, $p = .387$, indicated that homogeneity of variances had not been violated, again meeting the assumption for statistical testing.

The researcher used the sample population and SSPS software to determine the means of the group sums and standard deviations. The researcher used the means of the group sums and standard deviations to determine the perceptions of Arkansas NBCTs on the perceived impacts the National Board Certification process had on increased leadership opportunities. Table 7 displays the mean group sums and standard deviations.

Table 7

Descriptive Statistics for Increased Leadership Opportunities by Teacher Certification and Years of Experience

	3-10 Years			11+ Years			Total		
Certification Level	*n*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
K-6	84	19.15	5.81	83	19.76	6.75	167	19.46	6.28
7-12	55	18.64	6.47	69	19.81	6.12	124	19.29	6.28
Total	139	18.95	6.06	152	19.78	6.45	291	19.38	6.27

Table 7 demonstrates the perceived impact that the National Board Certification process had on increased leadership opportunities. Arkansas teachers with a certification level of K-6 and 3-10 years of experience ($n = 84$) demonstrate a high level of agreement

that little impact on increased leadership opportunities resulted from achieving National Board Certification (M = 19.15, SD = 5.81). Similar results (M = 19.76, SD = 6.75) were demonstrated with teachers at the K-6 certification level and 11 or more years of experience (n = 83). Similar results were present at the 7-12 certification level. In fact, teachers at the 7-12 certification level with 3-10 years of experience (n = 55) reported similar beliefs (M = 18.64, SD = 6.47). Slightly higher results (M = 19.81, SD = 6.12) were discovered with teachers at the 7-12 certification level with 11 or more years of experience (n = 69).

This portion of the survey instrument involved eight questions regarding the increased leadership opportunities that resulted from the National Board Certification process. Since *strongly agree* was coded with a value of 1 and *strongly disagree* was coded with a value of 5, the mean sum scores could range between 8 and 40. Hence, the above mean sum scores demonstrate a strong agreement that the National Board Certification process had a neutral impact on increased leadership opportunities. Figure 3 below shows the mean group sums for items pertaining to teachers' perceptions regarding the effects of the National Board Certification process on increased leadership opportunities.

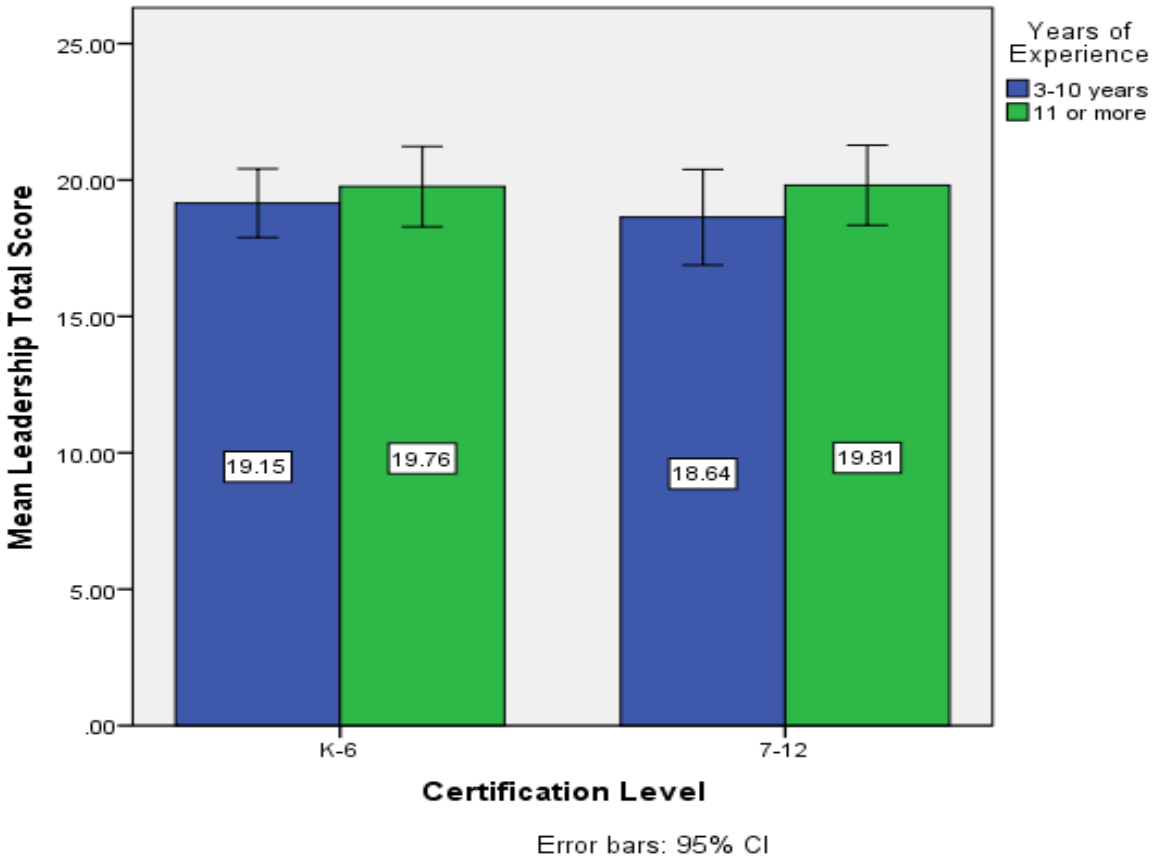

Figure 3. Means for increased leadership opportunities total score as a function of certification level and years of experience.

To test Hypothesis 3, the researcher conducted a 2 x 2 factorial ANOVA to evaluate the effects of certification level by years of experience on increased leadership opportunities as measured by the total score earned on the leadership skill section of the survey instrument. The results are displayed in Table 8.

Table 8

Factorial ANOVA Results from Survey Instrument Regarding Increased Leadership Opportunities as a Result of National Board Certification

Source	*SS*	*df*	*MS*	*F*	*p*	*ES*
Certification	3.83	1	3.83	0.10	.756	0.00
Experience	55.92	1	55.92	1.41	.235	0.01
Certification*Experience	5.76	1	5.76	0.15	.703	0.00
Error	11347.45	287	39.54			
Total	120757.00	291				

Insufficient evidence existed based on the interaction of the variables to reject the null hypothesis, $F(1, 287) = 0.15$, $p = .703$, $ES = 0.00$. Given there was no significant interaction between the variables of certification and years of experience, the researcher examined the main effect of each variable separately. The adjusted *R* squared of .005 demonstrated that the model explained 0.5% of the variance in teachers' perceptions regarding increased leadership opportunities as an effect of National Board Certification based upon teacher certification level and years of experience. The main effect for level of certification was not significant, $F(1, 287) = 0.10$, $p = .756$, $ES = 0.00$. The main effect for years of experience was not significant, $F(1, 287) = 1.41$, $p = .235$, $ES = 0.01$.

Research Question 1

In order to determine the perceived impacts of the National Board Certification process on teaching and learning, the researcher posed two qualitative research questions.

The first research question was, specifically, “How do you think student achievement within your classroom has benefited from your becoming a National Board Certified Teacher?” Of the 291 surveys returned, 75 or 25.8% failed to respond to the research question. The remaining 216 or 74.2% responded that the National Board Certification influenced the teaching and learning within the classroom in the areas of increased differentiation in instruction, teacher reflection, use of assessment, and content knowledge. Table 9 displays the perceived area of impact the National Board Certification process had within the classroom with examples of statements retrieved from the survey instrument.

Table 9

Number and Percentage of National Board Certification Perceived Area of Impact within the Classroom with Examples

Perceived Area of Impact	*N* of NBCTs Responses	% of NBCTs Responses
(1) Differentiation	67	31.0
• "I have focused more on the individuality of each student when making assignments and how each student learns differently." • "I am more aware of individual learning styles for each student so my instruction is aimed at meeting each different learning style."		
(2) Reflection	53	25.0
• "Student achievement has improved because I am constantly reflecting on my teaching practices." • "I have become a more reflective thinker, learner, and teacher. I constantly self-evaluate and evaluate the needs of my students and look at the data to modify and adjust for their needs."		
(3) Assessment	34	15.0
• "I plan assessments and activities with more purpose." • "I am more aware of the technical analysis of the data I collect in the classroom, which helps guide my instruction. This makes for a more efficiently run classroom and effective teaching."		
(4) Content Knowledge	62	29.0
• "I am teaching with a deeper knowledge, and I have the ability to meet the instructional needs of the students."		

As evidenced by the statements in Table 9, many NBCTs perceived the certification process as beneficial, especially in the areas of reflection, differentiation, and assessment. It appears that NBCTs gain skills through the certification process that are paramount to enhancing teaching and learning through differentiation. The evidence suggests that as teachers gain skills to use assessment data to make decisions regarding the teaching and learning, the quality of instruction improves. Overall, evidence suggests

that the National Board Certification process helps teachers provide classroom environments that are safe and conducive to learning—a vital component of student academic success.

Research Question 2

To determine the effects of the National Board Certification process on a larger scale, the researcher posed an additional research question. The second research question was, specifically, "How do you think student achievement within your school has benefited from your becoming a National Board Certified Teacher?" Of the 291 surveys returned, 83 or 28.5% failed to respond to the research question. The remaining 208 or 71.5% of the participants responded that the National Board Certification influenced the student achievement within their school by increasing the collaboration for teachers and parents, student performance and achievement, and the opportunities for the NBCT to professionally impact other staff members. Although there were many positive responses, some participants commented they were unsure how or if the certification process helped promote student achievement within their school. Table 10 displays the perceived area of impact the National Board Certification process had within the school with examples of statements retrieved from the survey instrument.

Table 10

Number and Percentage of National Board Certification Perceived Area of Impact within the School with Examples

Perceived Area of Impact	*N* of NBCTs Responses	% of NBCTs Responses
(1) Collaboration	50	24.0
• "Other teachers seek me out to ask my advice with students, lessons, etc."		
• "I've opened my classroom to our community stakeholders. Involving those stakeholders has helped the school develop a working relationship and build partnerships that were not there before."		
(2) Student Achievement	97	46.7
• "I do not believe that student achievement within my school has changed due to me becoming a NBCT."		
• "I am a better teacher. My students achieve on a very high level."		
• "My students have performed better in class work and standardized testing, but my principal does not take advantage of having six National Board teachers on his faculty, so school-wide there has been no impact."		
(3) Professional Impact	52	25.0
• "I have had the opportunity to mentor several teachers working toward their National Board Certification, which has increased the learning in those classrooms, which improves the whole school."		
(4) Other	9	4.3
• "I have seen growth in my subject area specifically, which I think is a result of increased content knowledge of teachers."		

As evidenced by Table 10 above, many NBCTs believe that achieving board certification has increased their ability to develop collegial relationships and serve as leaders within the school. Although not entirely positive, most of the above statements reflected the idea that the National Board Certification process enhanced content

knowledge and overall student achievement in schools. Furthermore, NBCTs identified the National Board Certification process as one that increased professional collaboration within the school. Nonetheless, participants communicated the concern that NBCTs continue to be underused within schools, thus limiting the degree of impact on student achievement.

CHAPTER V

DISCUSSION

Increased student achievement is necessary for success in the 21st century. Today, students face extreme obstacles that hinder their ability to perform both within the classroom and in life. Knowing this, it is paramount that the best educational system is in place to offer students experiences and opportunities to learn and build the foundational skills necessary to be successful in both college and career. Although many factors contribute to student academic achievement, teacher quality is essential (Koppich et al., 2007). With increased teacher quality, students are more likely to receive the instruction and educational experiences necessary for increased learning and future success.

The purpose of educational research studies of this nature is to collect and analyze data to further learning in a way that directly influences student achievement. Within this causal-comparative study, the researcher evaluated the perceptions of Arkansas NBCTs on the effects the National Board Certification process had on professional development, enhanced teacher quality, and increased leadership opportunities.

In this chapter, the researcher will focus on conclusions, implications, and recommendations for potential practice and future studies regarding each of the posed hypotheses and research questions. First, the researcher will reflect on data collected and analyzed within the research study. Next, the researcher will discuss implications of the

study and how the results compare to current research. Finally, the researcher will make recommendations regarding practice or policy and for future study.

Conclusions

To address the three research hypotheses, the researcher conducted three 2 x 2 factorial ANOVAs. The three research hypotheses evaluated the perceptions of Arkansas NBCTs in regard to the effects the National Board Certification process had on increased professional development, enhanced teacher quality, and increased leadership opportunities. To test the null hypotheses, the researcher used a two-tailed test with a .05 level of significance. However, because multiple statistical tests were used, which increases the likelihood of a Type I error, a Bonferroni correction was used to minimize the possible error. Therefore, given that three tests were conducted, the adjusted alpha used to reject the null hypothesis was .05/3 or alpha = .017. The researcher examined both the main effects and interaction effects of all three hypotheses. The researcher posed two qualitative research questions to determine specific ways the National Board Certification process influenced student achievement within the teacher's classroom and school. For the qualitative questions, the researcher used descriptive statistics to discuss the perceived impact the certification process had on student achievement. The researcher reported the number and percent of participants who shared common beliefs regarding the impact the certification process had on student achievement within their classroom and school.

Hypothesis 1

Hypothesis 1 stated that no significant difference will exist by experience and certification level on the perceptions of Arkansas NBCTs on the National Board

Certification process professional development. There was no significant interaction between the independent variables of years of experience and level of certification and the dependent variable of acquired professional development as a result of the National Board Certification process. Together, years of experience and level of certification did not affect Arkansas NBCTs' perceptions regarding how the National Board Certification process impacted their professional development. As a result, the null hypothesis for the interaction effect could not be rejected. Furthermore, there was not enough evidence to reject the null hypothesis for the main effect of years of experience or level of certification as no significant difference existed regarding the perceptions of Arkansas NBCTs on acquired professional development as a result of the National Board Certification process.

Through analyzing the mean scores in this area, regardless of years of experience or teacher level of certification, participants had a strong level of agreement that the National Board Certification process provided a highly effective professional development experience. Through analyzing the mean scores and survey questions for hypothesis one, participants perceived that the professional development experience was one that strengthened teaching, increased collaboration, increased content knowledge, and developed skills to help them better know their students.

Hypothesis 2

Hypothesis 2 stated that no significant difference will exist by experience and certification level on the perceptions of Arkansas NBCTs on enhanced teacher quality as a result of the National Board Certification process. There was no significant interaction between the independent variables of years of experience and level of certification and

the dependent variable of enhanced teacher quality as a result of the National Board Certification process. Together, years of experience and level of certification did not affect Arkansas NBCTs' perceptions regarding how the National Board Certification process enhanced teacher quality. As a result, the null hypothesis for the interaction effect could not be rejected. Furthermore, there was not enough evidence to reject the null hypothesis for the main effect of years of experience or level of certification as no significant difference existed regarding the perceptions of Arkansas NBCTs on enhanced teacher quality as a result of the National Board Certification process.

The mean scores within this area of the survey instrument represented a strong agreement in regard to the effect that the National Board Certification process had, regardless of years of experience or level of certification, on enhanced teacher quality. Although the mean averages were slightly higher compared to those for professional development, overall, teachers had a strong level of agreement in regard to the benefits of the certification process. According to the items within the survey instrument and the mean scores of the participants, individuals indicated the certification process strengthened their ability to help students with content standards, helped them to effectively use classroom assessments, allowed them to learn how to better differentiate instruction, and resulted in acquired skills necessary to increase student engagement.

Hypothesis 3

Hypothesis 3 stated that no significant difference will exist by experience and certification level on the perceptions of Arkansas NBCTs regarding increased leadership opportunities as a result of the National Board Certification process. There was no significant interaction between the independent variables of years of experience and level

of certification and the dependent variable of increased leadership opportunity as a result of the National Board Certification process. Together, years of experience and level of certification did not affect Arkansas NBCTs' perceptions regarding how the National Board Certification process influenced increased leadership opportunities. As a result, the null hypothesis for the interaction effect could not be rejected. Furthermore, there was not enough evidence to reject the null hypothesis for the main effect of years of experience or level of certification as no significant difference existed regarding the perceptions of Arkansas NBCTs on increased leadership opportunities as a result of the National Board Certification process.

The mean scores represented neutral perceptions of Arkansas NBCTs for increased leadership opportunity as a result of the National Board Certification process. Furthermore, experienced teachers—11 or more years of experience—were more neutral in regard to the effect the National Board Certification process had on increased leadership opportunities. Arkansas NBCTs felt less strongly about the influence the National Board Certification process had on increased leadership opportunities than the previous areas of acquired professional development and enhanced teacher quality. According to the survey instrument, the mean score demonstrated a neutral perception regarding the impact the National Board Certification process had on the opportunity for candidates to serve in leadership roles, to serve in decision-making teams, and to enter into leadership positions within the school.

Research Question 1

Within this study, the researcher posed two qualitative questions to determine specific perceptions of Arkansas NBCTs regarding the effects the National Board

Certification process had on student achievement within classrooms and schools. Research question 1 asked, specifically, "How do you think student achievement within your classroom has benefited from your becoming a National Board Certified Teacher?" The researcher examined the responses to the research question and used descriptive statistics to report findings. The researcher classified each response to this research question concerning how the certification process increased student achievement within the classroom.

Overwhelmingly, Arkansas NBCTs reported the certification process had a significant impact on their ability to differentiate instruction and better understand how to connect content with their students and other disciplines. Participants reported that the certification process improved their ability to know their students and then design lessons within their content area to meet student needs. Specifically, Arkansas NBCTs reported the positive influence that the certification process had on the use of assessment. Participants commented that the certification process helped to develop skills necessary to know how to design coherent assessments and use that information to plan the next steps in the instructional process. In addition, results from this research question emphasized the influence of the certification process on enhancing teacher reflection. Furthermore, numerous participants commented that as a result of the certification process, they gained skills necessary to become reflective practitioners. The participants described how the certification process caused them to reflect at all stages of the learning process and arrive at specific ways to improve student achievement within the classroom. Although comments were overall highly positive, a few participants stated that the

certification process had limited impacts on their teaching ability and that marginal impact on student achievement was noted within their classroom.

Research Question 2

In order to examine the effects of the National Board Certification process on school-wide academic achievement, the researcher posed an additional question. Research question 2 asked, specifically, "How do you think student achievement within your school has benefited from your becoming a National Board Certified Teacher?" The researcher examined the responses to the research question and used descriptive statistics to report findings. The researcher classified each response to this research question concerning how the certification process increased student achievement within the school.

Arkansas NBCTs communicated their experiences regarding the effects that achieving National Board Certification has had on their school. For example, participants stated that as a result of their achieving certification, professional communication within the school and with other colleagues increased. In fact, several individuals noted that non-NBCTs often seek their advice and expertise. This cultural change is often necessary to produce significant impacts on student achievement, building and district-wide. Participants reported that as more teachers within the school achieved National Board Certification, overall student achievement increased as documented on state standardized assessments. Again, NBCTs communicated their belief that often administrators fail to view National Board Certified teachers as advantageous to school improvement. Moreover, many participants communicated their belief that NBCTs are often underused within the school.

Implications

Research exists that both supports and questions the effects of National Board Certification on student achievement. Knowing this, it is important to continue to conduct research studies and analyze results to gain a better insight as to how National Board Certification influences teaching and learning at both the classroom and school level. Results from this study are similar to many of the existing pieces of research. Many research studies exist that evaluate the effectiveness of National Board Certification on teacher improvement and student achievement. These studies analyze the influence that National Board Certification has on various content areas. Studies are available that seek to determine how the certification process influences the professional development and leadership potential of NBCTs. This research study evaluates similar topics such as professional development, teacher quality, and leadership opportunity. However, this study specifically seeks to determine how years of experience and certification level influences the perceptions of NBCTs regarding the impacts the certification process has on professional development, enhanced teacher quality, and increased leadership opportunities. Furthermore, this study uses qualitative research questions to gain specific comments of Arkansas NBCTs in regard to how the certification process influenced teaching and learning, professional practices, and student achievement within the classroom and school.

The results of this study are similar to many that suggest that National Board Certification positively influences teaching and learning and overall student achievement. Like other studies, the results support the claim that National Board Certification has positive impacts on the professional development and overall quality of teachers. In

regards to leadership, existing research is mixed as to how the certification process affects leadership potential and use of the NBCT within the school. This study suggested that Arkansas NBCTs do not feel as strongly about increased leadership opportunities as a result of the certification process. Research exists that has similar findings in regard to the lack of use of NBCTs within the school.

The researcher encouraged the participation of 550 Arkansas NBCTs in this study. The NBCTs represented various geographical regions of the state. Although the researcher used various geographic regions within the study, there was limited participation in the Southeast region of the state. A higher percentage of participation in this geographic region would have reduced any limitation caused by lack of representation within the state. Furthermore, an overall greater participation rate would have provided additional data to gain a better understanding regarding the perceived impact the National Board Certification process had on enhanced professional development, teacher quality, and increased leadership opportunities. In addition, since this study was seeking the perception of the impact the National Board Certification process had on Arkansas NBCTs, any personal experience with the certification process—positive or negative—might have influenced the rating or perceived impact of the certification process.

In the review of literature, there was overwhelming evidence that the National Board Certification process positively affected the professional development of teachers. For example, Diskey (2001) conducted a study to determine the impact that the National Board Certification process had on teacher improvement. The study used 600 NBCTs to determine the impact that the National Board process had on teacher improvement. She

commented that 80% of the teachers surveyed commented that the National Board process was an effective professional development experience and that it was more helpful to improving teaching and learning than many other professional experiences. Likewise, Lustick and Sykes (2006) reported a strong increase in the professional learning of NBCTs throughout the certification process. The researchers reported that through the certification process, candidates became more reflective. Through this enhanced skill of reflection, teachers demonstrated areas of growth in the content knowledge and pedagogical skills necessary to promote teaching and learning.

Although research suggests that NBCTs enhance their professional development through the National Board Certification process, some argue that the degree of professional learning of teachers begins to stabilize or even decrease with years of experience (Murnane et al., 1995; Romanik, 2010). In this research study, similar means were reported regardless of years of experience. More experienced teachers with 7-12 certification levels reported slightly higher means than less experienced teachers—meaning teachers with more experience at this level of certification felt less strongly about the acquired professional development than less experienced teachers. However, more experienced teachers at the K-6 level had a lower mean than less experienced teachers at this level—demonstrating a stronger belief in the degree of professional development received as a result of the National Board Certification process. Regardless of years of experience or certification level, Arkansas NBCTs who participated in the study demonstrated a strong level of agreement concerning the benefits of the acquired professional development that resulted from the National Board Certification process.

Research supports the idea that teacher quality is paramount to student achievement. In fact, research has demonstrated the fact that teacher quality is the most influential factor that influences student achievement (Ferguson, 1998; Hanushek et al., 1999). Studies exist that support the idea that teachers who undergo the National Board Certification process hone their teaching practices and increase the quality of instruction that occurs within the classroom. For example, studies in North Carolina and Arizona both indicated that NBCTs had a positive effect on student achievement in both mathematics and literacy (Goldhaber & Anthony, 2004; Vandervoort et al., 2004). In these studies, the researchers found that NBCTs were more effective in both mathematics and reading than non-NBCTs. Although these studies exist, research is not conclusive that the certification process impacts teacher quality. For example, Harris and Sass (2008) conducted a four-year study in Florida. The study analyzed the impacts of National Board Certification on student achievement at the elementary, middle, and high school levels. During this study, the researchers used student achievement data for over one million students, nearly 30,000 mathematics teachers, and over 32,000 reading/language arts teachers. The researchers reported that—regardless of the level of certification or years of experience—no significant difference in effectiveness existed between NBCTs and non-NBCTs. For this research hypothesis, the Arkansas NBCTs surveyed produced a mean score that demonstrated a strong level of agreement that the certification process improved the quality of teaching within the classroom and was beneficial in regard to improving student learning.

Although teachers may possess the knowledge, skills, and dispositions necessary to be effective leaders within the school, administrators must give teachers opportunities

to demonstrate their potential. Research is mixed regarding the effects the National Board Certification process has on increased leadership opportunities. Research is available that suggests that teachers possess greater leadership skills as a result of the certification process. Nonetheless, conflicting research suggests that NBCTs have limited opportunities to serve in leadership capacities and educational leaders often fail to view NBCTs as potential leaders of change within the school. Sykes et al. (2006) conducted a study that explored the effects of NBCTs on individual schools as a result of the degree of leadership involvement available. The study included teachers at 1,500 schools. The researchers concluded that nearly all teachers were involved in leadership activities; however, the level of engagement in these activities varied with each teacher. The study suggested that educational leaders use NBCTs within the school for activities such as teacher mentoring. Although use of NBCTs within the school occurs, the educational leader within the building often determines the degree of leadership opportunities afforded to the NBCT. Belden (2002) communicated the fact that the certification process may not yield increased leadership opportunities as many NBCTs may already serve in leadership positions prior to certification. This research study echoes previous studies in that Arkansas NBCTs perceive the certification process to have had only a slight positive to neutral impact on enhancing their leadership opportunities within the school.

The results of the first qualitative research question are supported by various research studies. Hunzicker (2011) studied three teachers and the impact the National Board Certification process had on their teaching. Two of the three teachers commented that the National Board process was successful. The teachers attributed this success to the effects the certification process had on improving their practice through acquiring a

closer alignment between instructional goals, activities, and assessments. Belden (2002) reported similar results, with NBCTs communicating the positive impacts the certification process had on differentiation, content design, and teacher reflection. As teachers gain the skills necessary to differentiate instruction, design coherent lessons, and reflect upon teaching and learning, student achievement increases. For example, Cavaluzzo (2004) studied the effects of National Board Certification on student achievement and reported that students of NBCTs might expect to gain between 7 to 8% of one standard deviation more than non-NBCTs. Cowan and Goldhaber (2015) recently reported a study conducted to determine the influence of National Board Certification on teacher effectiveness in schools in Washington. The study suggested that NBCTs are about 0.01 to 0.05 student standard deviations more effective than non-board-certified teachers with similar experiences. These results indicated students of NBCTs possess an increase of three to five weeks in learning gains compared to students of non-NBCTs. The researchers suggested that the level of impact varies with certifications; however, the greatest effects were in middle school mathematics. Furthermore, the researchers argued that teachers who achieve certification during the first year are more effective, 0.08 standard deviations, than those who are successful after multiple attempts. While research findings are mixed, results continue to suggest that National Board Certification positively affects student achievement through directly influencing the ability and quality of the classroom teacher. Although these results exist, one must consider that research is available that proposes the idea that the certification process has minimal effects on increased student achievement.

Although the results of this study reflect the outcomes of many previous studies, conflicting research exists. Some research refutes the idea that National Board Certified teachers improve student achievement within the school. Stone (2002) published a report stating that NBCTs in Tennessee were average compared to other teachers within the district. He contended that there remained little reason to expect a positive relationship between National Board Certification and increased student performance. Likewise, Rouse (2008) reported a study in which he used 54 teachers to determine if National Board Certification made a difference in academic achievement for students in kindergarten through eighth grade. Rouse continued that within the study, he used a matched-pair design and a correlated samples *t*-test to determine impacts on student achievement. He reported that no statistically significant difference existed in student achievement for students taught by NBCTs.

Recommendations

Based upon results from this research study, there are several recommendations to benefit practice and policy in education. These recommendations are necessary to increase the NBCT population within the state. Furthermore, these recommendations are paramount to increasing the use of NBCTs within schools. The researcher identified the following recommendations for future consideration:

- Introduce school accountability for increasing the number of NBCTs within the district.
- Maintain state provided incentives for NBCTs.
- Protect and financially support candidate support programs to assist candidates in the National Board Certification process.

- Maintain teacher quality through a more frequent recertification process.
- Recognize schools with high percentages of NBCTs.
- Hold schools accountable for using NBCTs as change agents in the school improvement process.

As a result of this study, the researcher recommends policy and practice be implemented to increase the percentage of NBCTs in Arkansas. Furthermore, the researcher recommends that state governing agencies hold schools accountable for increasing the number of NBCTs in their district and for using the expertise of such teachers in changing the culture and practices within the classroom and school. These possible next steps are necessary to further learning and work to assure that student achievement increases at both the classroom and school level. These recommendations are important to policy makers as many states financially invest in National Board Certification by providing teacher incentives for achieving certification. Furthermore, these recommendations are important to educational leaders as increasing teacher quality is paramount to effective teaching and learning and increased student achievement.

Potential for Practice and Policy

Increasing student achievement is at the forefront of the minds of many policy makers, community leaders, and educational leaders. Research supports the idea that student achievement is determined—in part—by the level of teacher quality. Knowing this, increasing teacher quality is essential at the P-18 level. Research of this nature suggests that—regardless of geographic location—National Board Certification is one type of professional development that has perceived positive impacts on enhanced teacher quality and student achievement. Consequently, policy makers need to focus on

professional development opportunities of this nature for all teachers—regardless of years of experience and certification level.

Currently, many states encourage participation in the certification process through financially supporting a state bonus program. Incentives of this nature are necessary to encourage teachers to undertake the demanding process required to achieve certification. Policy makers must be aware of the importance of the incentive program to increasing the NBCT population in Arkansas. Policy makers must protect these funds and make them available to National Board Certified teachers each year. In addition, policy makers must realize the importance of candidate support programs to the successful completion of the certification process and work to support and recommend such programs for future candidates. Furthermore, policy makers must be aware of the need for more frequent renewal certification processes in order to ascertain high-quality teaching in the classroom. However, if the mindset of educational leaders is changed regarding the importance of NBCTs within the classroom and school, policy makers must hold schools accountable. This system of accountability must require state governing agencies to include the number of NBCTs for each school into the school accountability and performance report.

In order to increase student achievement, schools must concentrate on the quality of professional development provided to their teachers. Schools must work to increase teacher participation in professional development opportunities that increase teacher quality. Educational leaders must realize that not all professional development opportunities are beneficial, and educational leaders must use research to select professional learning opportunities that are most likely to improve the quality of teaching.

Policy makers need to better recognize NBCTs and schools with high percentages of National Board Certified teachers. Through this recognition, other schools and teachers would likely see the importance of the certification process. Educational leaders must use NBCTs within the school in order to determine the impact these teachers have on other professionals and on student achievement. Based upon the mean scores of this study, NBCTs perceived the certification process had limited impact on their opportunities to lead within the school; consequently, policy is needed that requires schools to document the use of NBCTs in school improvement plans. Through this process, state agencies would be able to hold educational leaders accountable for using NBCTs within the classroom, school, and district.

Future Research Considerations

In order to continue and enhance learning in this area of research, there are several recommendations for future study. Specifically, additional quasi-experimental or experimental studies are needed to determine the effects the National Board Certification process has on student achievement. Furthermore, additional replications of this study conducted with other populations would help to solidify the results and yield a better understanding regarding the effects of National Board Certification on the professional development, enhanced teacher quality, and increased leadership opportunities for teachers.

As a result of this study, additional studies regarding the effects the National Board Certification process has on leadership opportunities within the school should be an area of future focus. Within the qualitative research questions, many NBCTs communicated the lack of use of NBCTs within schools; therefore, future research is

needed to determine what factors hinder the use of NBCTs within schools. Within this study, independent variables—years of experience and certification level—were examined. Future studies are necessary to determine how other factors—certification area, socio-economic-status, and minority population within the school—affect the teacher's perception of how the certification process influences teacher quality and student achievement.

As future research studies are conducted, the researcher must be aware of the importance of the sample size. Researchers must survey or use more participants than are needed as the participation rates for studies of this nature are usually low. Researchers must determine if data are available or can be obtained in order to complete the research study. As more variables are examined, policy makers have research to suggest the effects that external variables have on the certification process. With additional research studies, individuals have more information to help understand the possible benefits of National Board Certification. Through reflecting on research, educational leaders gain the knowledge, skills, and dispositions necessary to make informed decisions regarding professional development opportunities such as National Board Certification. This information is necessary to help policy makers and educational leaders understand the importance of teacher participation in such rigorous processes that will enhance teacher quality and ultimately make a difference in the lives of students.

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APPENDICES

Appendix A

Request for Data File from Arkansas Department of Education

FW: NBCT list

Barbara Culpepper (ADE) [Barbara.Culpepper@arkansas.gov]
Sent: Wednesday, March 04, 2015 3:07 PM
To: jamie.burris
Attachments: ATLAS_NBCT_030315.xlsx (240 KB)

INA has sent the information you wanted from ATLAS. There does not seem to be a charge.

Barbara Culpepper
Office of Educator Effectiveness
Arkansas Department of Education
#4 Capitol Mall
Little Rock, AR 72201
501-682-4311
Fax: 501-682-5118

From: Rast, Renee [mailto:rrast@ark.org]
Sent: Tuesday, March 03, 2015 3:06 PM
To: Barbara Culpepper (ADE)
Subject: NBCT list

Here is the information requested on the NBCTs in ATLAS.

Renee Rast | Project Manager
Information Network of Arkansas
501-324-8914 Office
rrast@ark.org
ina.arkansas.gov

Thank you,
INA

Appendix B

Survey Instrument Used for Completion of Study

Dear National Board Certified Teacher:

The purpose of this survey instrument is to determine the perceptions of National Board Certification on teacher professional development, student achievement, acquired leadership skills, and parental involvement. By completing this survey, you agree to participate in data collection that will be used for the completion of the dissertation process. All answers are confidential and will be used only to compile data.

Demographics: Please select the answer that best describes you.

1. Which best describes your level of teacher certification? (Select the grade level span that describes where you spend most of day/time?) __ K-6 __7-12

2. How many years of teaching experience did you have when you received National Board Certification? _____

3. How many years have you taught as a National Board Certified Teacher? _____

4. Which county do you reside in? _____

5. Have you completed the National Board recertification process? __Yes __ No

6. If you have not completed the National Board recertification process, do you plan to? __ Yes __No __Undecided

The following statements represent opinions, and your agreement or disagreement will be determined based on your personal convictions. Please check your position on the scale that best represents your belief.

Perception of National Board Certification on Teacher Professional Development

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
7. The National Board Certification process allowed me to benefit professionally.					
8. The National Board Certification process resulted in professional development that allowed me to strengthen my teaching.					
9. The National Board Certification process allowed me opportunities for collaboration with other teachers.					
10. The National Board Certification process allowed me professional development opportunities that helped me take advantage of community resources.					
11. The National Board Certification process allowed me to develop and strengthen my capacity as a life-long (or professional) learner.					
12. The National Board Certification process encouraged me to seek the advice of others to improve my practice.					
13. The professional development experience associated with the National Board Certification process enhanced my content knowledge.					
14. The professional development experience associated with the National Board Certification process resulted in me learning ways to better know my students.					

15. The National Board Certification process allowed me to learn ways to better use student assessment as a means to plan future instruction.					

Perception of National Board Certification on Teacher Quality

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
16. The National Board Certification process strengthened my capacity to help students meet the K-12 Content Standards for Arkansas Public Schools.					
17. The National Board Certification process helped me to use student assessments effectively.					
18. The National Board Certification process helped me understand how knowledge in my subject area is connected to other disciplines.					
19. The National Board Certification process helped me to plan content for the individual differences in my students.					
20. The National Board Certification process helped me understand how students learn.					
21. The National Board Certification process helped me to learn how to differentiate my instruction.					
22. The National Board Certification process helped me learn how to engage students effectively.					
23. The National Board Certification process helped to improve my self-confidence as a teacher.					

24. The National Board Certification process helped me be able to articulate learning goals for students clearly.					
25. My students benefit as a result of the National Board Certification process.					

Perception of National Board Certification on Increased Leadership Opportunities

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
26. As a result of the National Board Certification process, I have experienced increased leadership opportunities.					
27. As a result of the National Board Certification process, I have experienced enhanced participation on school committees.					
28. As a result of the National Board Certification process, I have provided other formal professional development for other teachers.					
29. As a result of the National Board Certification process, I have been given the opportunity to mentor other teachers.					
30. As a result of the National Board Certification process, I engage with educational leaders and policy makers.					
31. As a result of the National Board Certification process, I engage in using social media to promote the National Board Certification process.					
32. As a result of the National Board Certification process, I provide mentoring for National Board candidates.					

33. As a result of the National Board Certification process, I have been given the opportunity to serve as a school administrator (such as instructional coach, assistant principal, principal, curriculum specialist, special education director, gifted and talented director, assistant superintendent, or superintendent).					

For the following two items, please provide any specific examples that would be helpful in determining how National Board Certification has influenced your teaching practices.

34. Specifically, how do you think student achievement within your classroom has benefited from your becoming a National Board Certified Teacher?

35. Specifically, how do you think student achievement within your school has benefited from your becoming a National Board Certified Teacher?

Appendix C

Request for Permission to Use/Modify Survey Instrument

Re: NBCT

Nancy Belden [NancyBelden@brspoll.com]
Sent: Monday, September 15, 2014 2:40 PM
To: jamie.burris

Jamie, I am out if the office until Thursday, and you can call me then. But you can use any questions you like. Just give us credit. Best wishes for your work. Nancy
Sent from my T-Mobile 4G Android device

"jamie.burris" <jamie.burris@dardanelle.k12.ar.us> wrote:

Good morning! My name is Jamie Burris. I called your office today and left a message; however, I thought I might be able to contact you via email. I am a NBCT in the state of Arkansas. I am currently working on my doctorate degree and am at the beginning stages of the dissertation process. As my dissertation topic, I hope to look at teacher perceptions of the National Board Certification process in regards to enhanced professional development, student achievement, leadership skills/opportunities, and parental involvement. I will be utilizing NBCT's in the state of Arkansas as the participants. I have been studying the *California Teachers' Perceptions of National Board Certification* that was published in 2002. The survey instrument is exceptional. In fact, it has a wealth of items that could be useful in my study. My question to you, is it possible for me to have permission to use selected items from the survey instrument in this study? I would not be using all of the items; however, 20-30 would certainly serve me very well in this project. I thank you in advance for your time and considerations.

Jamie Burris, NBCT, Ed. S
Instructional Supervisor
Federal Programs Director
Dardanelle Public Schools

Appendix D

Informed Consent Agreement

Dear National Board Certified Teacher:

The purpose of this survey instrument is to determine the perceptions of National Board Certification on teacher professional development, student achievement, acquired leadership skills, and parental involvement. By completing this survey, you agree to participate in data collection that will be used for the completion of the dissertation process. All answers are confidential and will be used only to compile data.

Appendix E

IRB Approval

HARDING UNIVERSITY
INSTITUTIONAL REVIEW BOARD

Status of Request for Exemption from IRB Review

(For Board Use Only)

Date: 1/29/15

Proposal Number: 2015-008

Title of Project: Teachers' Perceptions of National Board Certification on Professional Development, Acquired Leadership Skills, and Teacher Quality

Principal Investigator(s) and Co-Investigator(s): Jamie Burris Jamie.burris@dardanelle.k12.ar.us

- [x] Research exempted from IRB review.
- [ ] Research requires IRB review.
- [ ] More information is needed before a determination can be made. (See attachment.)

I have reviewed the proposal referenced above and have rendered the decision noted above. This study has been found to fall under the following exemption(s):

1 ☐ 2 ■ 3 ☐ 4 ☐ 5 ☐ 6 ☐

In the event that, after this exemption is granted, this research proposal is changed, it may require a review by the full IRB. In such case, a ***Request for Amendment to Approved Research*** form must be completed and submitted.

This exemption is granted for one year from the date of this letter. Renewals will need to be reviewed and granted before expiration.

The IRB reserves the right to observe, review and evaluate this study and its procedures during the course of the study.

Rebecca O Weaver

Chair
Harding University Institutional Review Board

Appendix F

Invitation to Participate in the Study

TEACHERS' PERCEPTIONS OF NATIONAL BOARD CERTIFICATION ON PROFESSIONAL DEVELOPMENT, TEACHER QUALITY, AND INCREASED LEADERSHIP OPPORTUNITIES

Letter of Consent

January 2015

Dear Teacher:

You have been selected to participate in this study because you have received National Board Certification. As a former teacher and a current building administrator, I know how busy you are, and your time in completing this survey is greatly appreciated.

As a part of my doctoral studies at Harding University, I am interested in discovering the perceptions of National Board Certified teachers regarding the impacts that certification has had on professional development, enhanced teacher quality, and increased leadership opportunities. Your opinions and perspectives will enable me to provide an accurate picture to stakeholders regarding perceptions about the impacts of National Board Certification upon the student achievement of students in Arkansas. Studies of this nature are important to political leaders and help to justify the continuation of state incentives for Arkansas Teachers; thus, your response is extremely important.

Since the validity of the results depends on obtaining a high response rate, your participation is crucial to the success of this study. The completion of the online questionnaire will last approximately ten minutes. Please be assured that your responses will be held in the strictest confidence. You will not be identified by name, so I would appreciate your honest response to each question. As soon as questionnaires are collected, they will be stored in a secure online database that will be password protected. Once the study is complete, the information in the database will be deleted. If the results of this study were to be written for publication, no identifying information will be used.

I would like to thank you in advance for your time and effort in bringing this study to a reality. If you are interested in the results of this survey, please indicate that you would like a copy of the results on the final question in the questionnaire.

Your participation in this study is completely voluntary. You may choose not to participate and discontinue your participation at any time with no penalty and without loss of benefits to which you would otherwise be entitled.

If you agree to participate in this survey, you may proceed to the web address below and begin. The deadline to complete the survey is April 3, 2015. Your accessing this link

will demonstrate that you have read this consent form, that you freely and voluntarily choose to participate, and that you consent to participate.

Sincerely,
Jamie Burris

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