EVALUATION OF NON-TRADITIONALLY AND TRADITIONALLY PREPARED TEACHERS' PEDAGOGICAL CONTENT KNOWLEDGE AND PRACTICE USING PERFORMANCE-BASED EVIDENCE

Falicia Harvey
Coordinator of Alternative Certification
South Carolina Department of Education

Belinda G. Gimbert
Assistant Professor, School of Educational Policy and Leadership
The Ohio State University

This study was designed to compare teachers certified in South Carolina that were trained in two different methods: through traditional college preparation programs and through the Program of Alternative Certification for Educators (PACE). This study explored three research questions. The first question addressed differences in pedagogical knowledge based on the Principles of Learning and Teaching (PLT) examination. There was a significant difference between the mean scores of the traditionally trained teachers and the alternatively trained teachers. The second question addressed differences in the evaluation of teaching performance based on the Assisting, Developing, and Evaluation of Professional Teaching (ADEPT) school district level evaluator's perception of teachers' performance on the individual performance dimension and the sum of rating on the performance dimensions. There was not a significant difference between any of the mean scores for the individual performance dimensions, nor the sum of the mean scores for the individual performance dimensions. And, the third question addressed differences in performance by teachers certified by the two methods based on demographic variables. There were no significant differences in mean scores based on age, gender, or race at the .05 level. The analysis of the demographic variable highest degree earned revealed there was a significant difference in the performance between teachers who had a master's degree and teachers who had a master's with additional graduate hours or a doctorate. And, this difference was true for both alternatively and traditionally certified teachers.

INTRODUCTION

This study answered three research questions through a series of comparisons of five independent variables and two dependent variables. The first question addressed differences in pedagogical knowledge based on the Principles of Learning and Teaching (PLT) examination. The second question addressed differences in the evaluation of teaching performance based on the Assisting, Developing, and Evaluation of Professional Teaching (ADEPT) school district level evaluator's perception of teachers' performance on the individual performance dimension and the sum of rating on the performance dimensions. The final question

addressed differences in performance by teachers certified by the two methods based on demographic variables.

This study included five independent variables and two dependent variables. The primary independent variable was the method of teacher certification (traditional vs. alternative). The other four independent variables were demographic variables (age of the teacher, gender of the teacher, race of the teacher, and the highest degree earned by the teacher). The first dependent variable was the teachers' score on the Principles of Learning and Teaching (PLT) examination. The second dependent variable was the school district level evaluator's perception of the teachers' performance on the Assisting, Developing, and Evaluation of Professional Teaching (ADEPT) instrument. Both the total performance and the performance on each of 10 performance dimensions were analyzed.

Based on information provided by the South Carolina State Department of Education, 47 of South Carolina's 85 school districts had used the TEAM evaluation model for the school year 2003–2004. Of the 932 teachers who were formally evaluated in those school districts, 768 (82.4%) were traditionally certified and 164 (17.6%) were alternatively certified. The first question addressed differences in pedagogical knowledge based on the Principles of Learning and Teaching (PLT) examination. The mean score for traditionally trained teachers was 174 and for alternatively trained teachers was 169. The analysis indicated there was a significant difference between the mean scores.

The second question addressed differences in the evaluation of teaching performance based on the ADEPT school district level evaluator's perception of teachers' performance on the individual performance dimensions and the sum of ratings on the performance dimensions. The analysis determined there was not a significant difference between any of the mean scores for the individual performance dimensions, nor the sum of the mean scores for the individual performance dimensions.

The final question addressed differences between alternatively and traditionally certified teachers' performance when compared by the demographic variables. The analysis determined there were no significant differences in mean scores based on age, gender, or race at the .05 level. The analysis of the demographic variable highest degree earned revealed there was a significant difference in the performance between teachers who had a master's degree and teachers who had a master's with additional graduate hours or a doctorate. And, this difference was true for both alternatively and traditionally certified teachers.

The shortage of teachers in the United States is a continual and growing problem. Unable to fill positions with fully certified teachers, school districts have often granted out-of-field permits to teachers who are certified, canceled their course offerings, or expanded class sizes. While there is a nationwide shortage of teachers, there are pockets of extreme critical need in specific subject areas or geographic locations. Specifically, urban and rural areas face greater needs (Stoddart & Floden, 1995).

Traditional routes to teacher certification will not likely solve the problem. Over one-third of graduates of traditional teacher education programs do not teach immediately following graduation (Bradshaw, 1998). At the same time, student enrollment is increasing and teacher attrition is increasing due to teacher retirements (Ingersoll, 2001). In addition, of those who do start teaching, 29% leave after three years and 39% after five years (Ingersoll & Smith, 2003). Between 1999 and 2009, the United States is expected to have to replace as many as 2 million of its current 27 million teachers. Today, females who had traditionally chosen the teaching profession have more choices. The percentage of female college graduates ages 20-29 who were employed as teachers dropped from 40% in 1970 to 11% in 1990. At the same time, however, legislative mandates are requiring smaller class sizes (Franklin, Pendegrass, Tu, & Veitch, 1999).

The No Child Left Behind (NCLB) Act of

2001 has been the focus of the United States Department of Education's response to the teacher quality challenge. Highly qualified teachers are those who are fully licensed or certified by the state and who must not have had any certification or licensure requirements waived on an emergency, provisional, or temporary basis. The United States Department of Education has endorsed alternative routes as one method of complying with the highly qualified requirement (United States Department of Education, 2004). In short, NCLB (2001) has allowed for teachers to be deemed highly qualified simply by being enrolled in an alternative route to certification (Darling-Hammond & Sykes, 2002). In response, to fill the many teaching positions created by the teacher shortage while meeting the demands of No Child Left Behind (2001), many states have turned to alternative routes to certification. Since 1985, approximately 250,000 teachers have earned professional certification through alternative routes. Forty-eight states and the District of Columbia report that they have at least one type of alternate route to teacher certification with a total of 122 individual programs nationwide (Feistritzer & Chester, 2006).

An outcome of the NCLB (2001) legislation, the changed relationship between teacher education, teacher certification, and the school system has spurred teacher education to redesign its knowledge base, its connections to both practice and theory, and its capacity to support the development of powerful teaching. Possible solutions can be placed on a contrasting continuum. "One approach would replace university-based preparation with on-the-job training that focuses on the pragmatics of teaching, whereas the other would expand professional training to prepare teachers for more adaptive, knowledge-based practice, while simultaneously tackling the redesign of schools and teaching" (Darling-Hammond, 2000, p. 166). A response to the changing relationship between teacher education and teacher certification has been the development of alternative certification programs. Having reviewed the history of American teacher education, Dial and Stevens (1993) concluded that teacher education had not been respected and that policies on teacher education and certification were governed by the supply and demand of teachers. Additionally, they found that there was no consistency between the U.S states, or within states over time, regarding policies of teacher education and certification. In summary, Dial and Stevens have conceptualized alternative certification simply as another change in teacher certification policy.

The path leading to the acceptance of alternative certification has followed a trend seen earlier in the history of teacher preparation. That is, each state doing what certain lawmakers, portions of the public, and a few educators demanded (Brown, Vaughn, & Smith, 2004). Each of these entities had an influence on the creation of alternative routes to certification. Alternative certification programs were established not only to address the anticipated teacher shortage, but also as a response to criticism that teacher education programs were not effective (Johnson, Birkeland & Peske, 2005). Alternative routes created a method for states to circumvent the traditional programs and still issue a teacher certification. Another purpose of alternative certification has been to attract academically talented individuals to education who had not originally chosen it as a career field. If it is accepted that there is no value in teacher education programs, then it is arguable that an alternative route would provide adequate training for an academically talented individual (Roth, 1986). Ballou and Podgursky (1998) believe that it is, in fact, the constrained certification regulations recommended by the National Commission on the Accreditation of Teacher Education (NCATE) and the Interstate New Teacher Assessment and Support Consortium (INTASC) that have restricted the options of school boards in hiring mid-career professionals. This has contributed to, rather than limited, the teacher shortage (Ballou & Podgursky, 1998).

Nationwide, alternative programs produce as many as 35,000 teachers a year. The National Center for Education Information (NCEI) has been

polling state departments of education since 1983 regarding alternatives to the traditional methods of certification. NCEI has noticed a growth in alternative programs from only 8 states with programs in 1983 to 48 states with programs in 2005 (Feistritzer & Chester, 2006). Specifically, there are more than 600 alternative route programs operating nationwide (Jacobson, 2005). Bradshaw (1998) has noted that interest in alternative certification focuses on three major issues: a need to replace the declining number of available teachers, a concern with the quality of individuals who choose teaching as a career, and a desire to allow individuals into teaching who are perceived to have skills needed by schools.

One of the three reasons cited for creation of alternative programs, a pending teacher shortage appears to be the most significant. It has been estimated that public schools will need to hire 2.2 million teachers by 2010 (Hussar, 1999) although some argue that the shortage of teachers is generally a distributional problem rather than an overall shortage of qualified teachers (Darling-Hammond & Sykes, 2002).

A second rationale often cited for the creation of alternative routes to teacher certification is concern with traditional teacher education programs. Dill (1996) and Haberman (1994) state that higher education programs were an impediment to minorities and poor who wanted to enter teaching and they rarely produced graduates who were interested in teaching in urban or poor schools. Others defend traditional teacher education as an "industry" with defined standards for accomplished and effective instruction (Berliner, 2000).

The growth of alternative certification programs has sparked the perception that they are a threat to traditional certification programs offered through higher education institutions. Alternative programs have achieved political and societal acceptance and a state of permanence (James & McNiece, 1991). Traditional programs offered through colleges of education have been branded as "broken" by the USDOE (United States Department of Education, 2004) while alternative programs are seen as a way to address the perceived problem with the quality of teachers (Feistritzer, 1994). Alternative programs provide competition to the perceived monopoly held on teacher education by the traditional programs (Fenstermacher, 1990).

A third reason is illustrated by the perception that alternative routes have also been changing the look of the teaching population. More minorities, males, and older professionals currently enter the teaching profession through alternative routes than have been represented in the teaching population.

Research comparing alternatively and traditionally certified teachers should be reviewed with caution because alternative programs vary widely in nature and scope (Feistritzer & Chester, 2005). For example, Shen (1997, 1998a, 1998b) based three studies that showed a higher percentage of alternatively trained teachers taught at the secondary level, in large cities, and in schools where 50-100 percent of the students were from minority groups on the Schools and Staffing Survey. However, Ballou (1998) states that the studies cannot be trusted because of weaknesses in the Schools and Staffing data.

The study conducted by Raymond, Fletcher & Luque (2001) of Teach for America has often been referenced to show that alternative route teachers were as effective as other inexperienced teachers in schools and classrooms serving high percentages of minority and low income students. However, the Teach for America teachers were compared to underqualified teachers who did not even hold a bachelor's degree (Darling-Hammond, 2002).

Traditionally trained teachers are believed to gain instructional and planning skills that make them better prepared for the profession of teaching (Jelmberg, 1996) and alternatively trained teachers may blame classroom problems on the students rather than recognizing the weaknesses in their own instruction (Houston, Marshall &McDavid,1993). In general, alternative certification is believed to lower the standards for entering teaching and to degrade the profession

(Darling-Hammond, 1990).

Alternative certification is often cited as a means for finding teachers in the urban setting, but to some analysts that simply means that students in inner city areas where the worst shortages exist are hurt by alternative certification programs (Kennedy, 1991). Some research shows that alternatively certified teachers hindered their students' learning because they are not adequately trained (Knight, Owens & Waxman, 1990; Laczko-Kerr and Berliner, 2002; Goldhaber & Brewer, 2000). Other studies refute the argument that alternatively certified teachers are more effective because of their vast content knowledge. Having content knowledge does not necessarily ensure the teacher's ability to convey the content knowledge (Grossman, 1989; McDiarmid & Wilson, 1991)

Alternatively trained teachers have offered a mixed blessing. Alternative routes to teacher certification appear to be attracting a more diverse pool of prospective teachers (Guyton, Fox & Sisk, 1991; Houston et al., 1993; Hutton, Lutz & Williamson, 1990; Stoddart, 1990), yet they have exhibited a mixed record for attracting the best and brightest (Stoddart, 1990). More alternative route participants appear willing to teach in urban settings and to teach minority children (Houston et al., 1993; Shen, 1997, 1998a, 1998b), yet the performance evaluations of alternative route teachers have produced mixed results (Hutton et al., 1990; Jelmberg, 1996; Miller, McKenna & McKenna, 1998; Gimbert, Cristol & Sene, in press). However, alternatively certified teachers who have completed a high quality program showed positive similarities to those who completed a traditional program (Guyton et al., 1991). Finally, successful alternative routes to certification have been labeled as resource and labor intensive (Stoddart, 1990; Wilson, Floden & Ferrini-Mundy, 2001).

Regionally, the alternative route to teacher certification in South Carolina has grown significantly since its inception. While only 400 participants completed the program during the first ten years, the number of program participants doubled each year from 1999-2002. More recently, the program has leveled off to 1100 participants annually (J. Turner, personal communication, February 28, 2005). According to the annual supply and demand survey administered by the South Carolina Center for Educator Recruitment, Retention, and Advancement (CERRA, 2005), PACE participants have accounted for 7-10% of new teachers hired in South Carolina for the past four years. Alternative programs, such as the one in South Carolina, are giving a non-traditional population access to the classroom (Feistritzer & Chester, 2006). In the late 1980's, two studies were conducted to determine the effectiveness of South Carolina's alternative certification program (Carey, Mittman, & Darling-Hammond, 1988; Sundrum & Berry, 1989). Both studies found that the alternative program at that time was effectively preparing teachers for science and mathematics classrooms. However, since the findings of these studies were released, no other studies have formally addressed the performance of alternatively–certified teacher candidates in South Carolina.

Despite a plethora of studies that have focused on macro effects of teacher qualifications, there is a noticeable lack of policy evaluation research with classroom-based data on the individual teacher. In particular, little research has studied the pedagogical content knowledge and outcomes-based performance of novice teachers who experienced different pathways of teacher preparation. This study focused on alternative route participants and traditionally trained teachers who were in their second year of teaching for the school year 2003–2004 in South Carolina. The study was limited to the second year teachers in South Carolina school districts that used the Assisting, Developing, and Evaluation of Professional Teaching (ADEPT) Team-Based Evaluation and Assistance Model (TEAM).

This study addressed the following questions:

1. What, if any, differences exist between South Carolina Program of Alternative Certification for Educators (PACE) and traditionally certified teachers' pedagogical knowledge?

2. What, if any, differences exist between South Carolina PACE and traditionally certified teachers in school district level evaluation of teaching performance?
3. Are there any differences between South Carolina PACE and traditionally certified teachers' performance when compared by the demographic variables of age, gender, race, and highest degree earned?

CONTEXT OF THE STUDY

As is the case with most educational concepts that become popular over a rather short period of time, alternative routes of teacher preparation appear to be as different as they are similar. The large variability in alternative certification programs has made it difficult to compare nontraditional teacher preparation with traditional teacher training on student performance, often because there was not enough information concerning the characteristics or design features of the programs in question (Darling-Hammond & Youngs, 2002). Essentially, a description of the specific nontraditional teacher preparation program provides the context in which this study's emerging understandings unfolded.

The state of South Carolina instituted an alternative certification program in 1984 as part of the Education Improvement Act (EIA). The original legislation called for a conditional certification program combining accelerated and intensive professional education training requirements with a full-time classroom teaching assignment (Corbin, 1990). Until 2001, South Carolina's alternative route to teacher certification was called the Critical Need Certification Program (CNCP). Based on recommendations from the 2000 Governor's Commission on Teacher Quality, the program updated admission requirements and changed the name to the Program of Alternative Certification for Educators (PACE) in 2001. Today's program was designed to train and place highly qualified teachers in critical geographic and content areas (J. Turner, personal communication, February 28, 2005).

Currently, alternative routes to certification also face much criticism. Alternative routes that are viewed as short-cut routes that provide meager training and little support are believed to fail at preparing teachers to succeed or to stay in the profession (Darling-Hammond & Sykes, 2003). 'Undercertified,' a term often used to describe alternatively or emergency certified teachers, means 'underqualified.' There are educational researchers who feel that those who have trained longer and harder do better in the complex work of teaching than those trained by alternative means (Laczko-Kerr & Berliner, 2003). This concept is supported by the fact that traditional teacher training programs are being required to move to more stringent standards (Franklin et al., 1999). There is continued pressure for traditional teacher education programs to increase their admission requirements and increase the academic content of their programs or risk losing federal funds (The Teaching Commission, 2004).

The contradictions between traditional and alternative programs are visible in South Carolina. The South Carolina State Board of Education voted in 2002 to utilize the National Council for the Accreditation of Teacher Education (NCATE) standards to evaluate South Carolina's teacher education programs. This increased the accountability for teacher education programs statewide. At the same time, the State Board of Education continues to endorse PACE as the alternative route for teacher certification. Like many other states, South Carolina has a formal, approved program method for teacher certification, the state's NCATE approved programs, and what some feel is a much less rigorous alternative method of achieving teacher certification, PACE.

Because 1,100 of the state's 45,000 teachers are alternatively route participants (J. Turner, personal communication, February 28, 2005), South Carolina's alternative route to certification is having an impact on the face of teaching in this state. However, there have been few studies conducted by the State Department of Education or other entities regarding the efficacy of the state's alternative certification program.

Nationwide, research about the impact of alternative certification is limited and has produced decidedly mixed findings (Wilson et al., 2001). Because of the many classifications of alternative routes to certification (Feistritzer & Chester, 2005), alternative certification is perceived as a difficult concept to study.

South Carolina's alternative route to certification is unique because, unlike other states, PACE is the only route to certification in South Carolina other than a traditional, state-approved route at a college or university (J. Turner, personal communication, February 28, 2005). By contrast, nationwide there are 122 alternative routes being implemented by 619 program providers (Feistritzer & Chester, 2006). South Carolina modified its alternative route admission requirements in 2001 and its training program in 2003. The current program curriculum follows the standards of Interstate New Teacher Assessment and Support Consortium (INTASC).

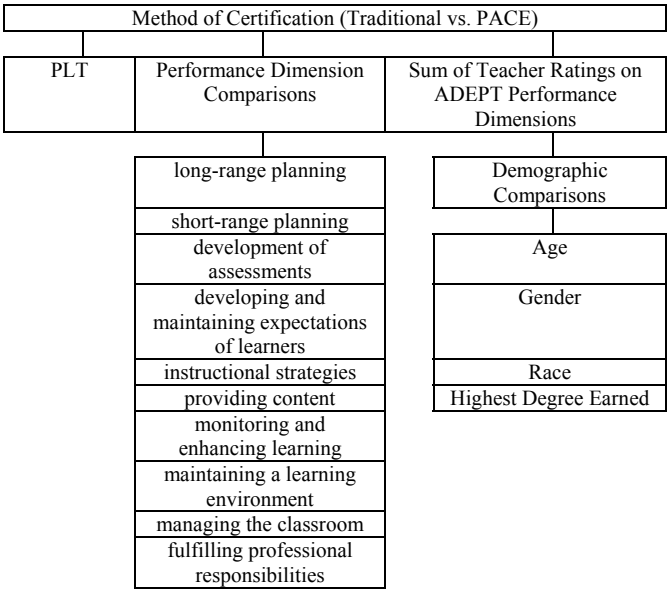
South Carolina's alternative route was one of many programs created as part of the Education Improvement Act (EIA). At the time of the original program in 1984, mathematics and science were identified by the State Board of Education as critical geographic shortage areas. By 1988, library media and foreign languages had been added to the critical geographic area list. The current critical subject list includes these original content areas as well as business education, English/language arts, home economics, industrial technology, mathematics, music, science, special education – emotionally disabled, and theater.

Current PACE admission requirements include a bachelor's or master's degree from a regionally accredited higher education institution in the content area the participant intends to teach, passing scores on the appropriate Praxis content examination(s), and two years of full-time work experience. The work experience must include one year of continuous full-time employment. Candidates who meet these admission criteria receive notification of their eligibility for employment in a South Carolina school district. Once employed, PACE candidates are enrolled in a pre-service training program. During their three years of program participation, PACE participants complete a series of training institutes and seminars, three graduate courses in basic teaching pedagogy, three successful years of teaching, and present a passing score on the Principles of Learning and Teaching (PLT) examination.

METHODOLOGY

A quasi-experimental design was used for this study because two intact groups of subjects were formed on a basis other than random assignment. Specifically, a non-equivalent comparison group design was used in the study.

Figure 1 – Graphic Representation of the Study



Participants

All data was provided by the South Carolina Department of Education Division of Teacher Quality and School Leadership (SDE DTQSL). The data did not include any identifying variables, so the teachers being studied maintained anonymity. The data provided by the State Department of Education included age, gender, race, highest degree earned, test scores, and

ADEPT performance data for each teacher who was on an annual or provisional contract during the 2003–04 academic year. For purposes of this study, data were only compared from districts using the ADEPT Team-Based Evaluation and Assistance Model (TEAM). A total of 3010 teachers were evaluated at the provisional or annual contract level. Of those, approximately 932 were evaluated in school districts that use the ADEPT TEAM evaluation system. Seven hundred sixty-eight (82.4%) were traditionally certified and 164 (17.6%) were alternatively certified. Annual contract teachers were those who received a "met" status for their induction or first year or teaching. Provisional contract teachers were those who received a "not met" status for their induction or first year of teaching.

PACE Eligibility. According to the State Department of Education web site, current PACE admission requirements include a bachelor's or master's degree from a regionally accredited higher education institution in the content area the participant intends to teach, passing scores on the appropriate Praxis content examination(s), and two years of full-time work experience. Participants who teach in subject areas designated as critical need may teach in any district in South Carolina. Participants teaching in a subject that is not designated as critical need must teach in a designated geographic area experiencing a teacher shortage. Candidates who meet these admission criteria receive notification of their eligibility for employment.

Once employed, the school district notifies the SDE and the participant is sent information about the next available training program. PACE candidates are enrolled in a pre-service training program. During their three years of program participation, PACE participants complete a series of training institutes and seminars, three graduate courses in basic teaching pedagogy, three successful years of teaching, and present a passing score on the Principles of Learning and Teaching (PLT) examination.

PACE Training Program. Through a federally funded Transition to Teaching grant designed to encourage states to implement alternative routes to teacher certification, the pre-service, in-service, and seminar training programs are offered at five regional locations across the state. The 10 day pre-service program is offered twice a year in July and December. The goal of the program is to provide basic pedagogical training, an introduction to education theory, and basic classroom skills for beginning teachers prior to entering the classroom. The in-service which is held in June after the first academic year of teaching is designed to build on basic teaching pedagogy and to provide more in depth knowledge regarding education theory.

Instruction for the pre-service, in-service, and seminars was provided by a cadre of teacher educators and current classroom teachers. All instructors were trained in the PACE curriculum and assessment plan to ensure a consistent training program statewide. This training was unique in that it is offered solely through the SDE rather than a higher education institution.

The three graduate courses PACE participants complete were selected from a list of approved courses and based on recommendations from the teacher's first year evaluation team. By the end of the third year, the PACE participant must have presented a passing score on the PLT examination.

PACE participants were issued a Critical Need Certificate valid for one academic year upon successful completion of the pre-service training program. They were issued a second Critical Need Certificate for one academic year upon successful completion of the in-service training program and confirmation of continued employment. The third year Critical Need Certificate was issued based on continued progress in completing PACE requirements and confirmation of continued employment.

PACE participants were evaluated using the state's ADEPT evaluation system. PACE participants must attain three successful years of teaching and have completed all program requirements prior to advancing to their professional certificate. The training program was

provided at no cost to PACE participants. There was a minimal supply fee for the training programs. However, PACE participants were not responsible for the graduate course tuition.

Data Measures

This study included five independent variables and two dependent variables. The primary independent variable was the method of teacher certification (traditional vs. alternative). The other four independent variables were demographic variables (age of the teacher, gender of the teacher, race of the teacher, and the highest degree earned by the teacher). The first dependent variable was the teacher's knowledge of pedagogy, as measured by the score on the Principles of Learning and Teaching (PLT) examination. This teacher test, offered through the Educational Testing Service (ETS) was required of all traditionally trained teachers and PACE participants prior to advancing to the professional certification. The PLT test is designed to assess a beginning teacher's knowledge of a variety of job-related criteria. Such knowledge is typically obtained in a traditional teacher education program in areas such as educational psychology, human growth and development, classroom management, instructional design and delivery techniques, evaluation and assessment, and other professional preparation. South Carolina's alternatively trained teachers obtain this knowledge through the State Department of Education training and the graduate courses.

The second dependent variable was the teachers' performance as determined by the ADEPT instrument. Both the total performance and the performance on each of 10 performance dimensions were analyzed. The individual performance dimensions were long-range planning, short-range planning, assessment development, developing and maintaining high expectations of learners, instructional strategies, providing content, monitoring and enhancing learning, maintaining a learning environment, managing the classroom, and fulfilling professional responsibilities.

Assisting, Developing, and Evaluating Professional Teaching (ADEPT)

Since two of the primary research questions in this study related to the teachers' performance on ADEPT, it is important for the reader to understand this tool as a method for evaluating teachers in South Carolina.

In 1998, the South Carolina State Board of Education passed a regulation establishing the ADEPT system. Included in the regulation were professional standards for teaching, specific expectations for the teacher's induction year, and a process for evaluation of teachers at all contract levels (Anderson, 2003). ADEPT outlines the knowledge and skills needed by teachers to address the ever-changing contexts of teaching (South Carolina Department of Education, 1999).

The standards of teaching set by ADEPT are known as performance dimensions. They articulate what teachers should know and be able to do and reflect the principles of competent professional teaching. Teachers move through the ADEPT system through a series of employment contracts with South Carolina school districts.

Traditionally trained teachers were often informed about the ADEPT process during their teacher education programs. Student teachers were evaluated and assisted through a locally designed process. Alternatively certified teachers were not likely to have had formal interaction with the ADEPT process prior to their first year of teaching.

Newly hired teachers, whether traditionally or alternatively trained, were placed on an induction contract. During this first year of teaching, the district provided an induction program that assisted the novice teacher in making the transition to the classroom. During this year, there was no formal evaluation; rather, there was guidance and support. Through a locally defined system, the district decided whether or not the teacher was rehired for the second year and at what contract level. If the teacher was successful, they were rehired by the district on an annual contract.

If the teacher was unsuccessful, they may have been rehired by the district on a provisional contract. Regardless of the contract level, the second year teachers were formally evaluated with a locally designed process that met state regulations. During the school year 2003–2004, 2,851 teachers were evaluated at the annual contract level and 159 teachers were evaluated at the provisional contract level.

The Team-Based Evaluation and Assistance Model (TEAM) was developed by the State Department of Education to provide a formal evaluation process for typical teaching performance. The ultimate goal was improvement of instruction. During the school year 2003–2004, 47 of South Carolina's 86 school districts used the TEAM model.

The Evaluation Team is composed of two educators who have successfully completed the TEAM Evaluator Training program. One member of the team should be a building administrator. The second member of the evaluation team may be a district-level administrator, a teacher or building administrator, or another educator deemed appropriate by the school district. A brief description of each performance dimension is outlined in Table 1.

Table 1

ADEPT Performance Dimensions Descriptions

Performance Dimension	Description
PD 1: Long-range planning (LRP)	An initial LRP is defined as an overall strategy for facilitating student achievement of long-range learning and developmental goals, as well as a general organizational framework for progressing through the school year in an efficient and logical manner. Long-range planning, which may be completed independently or collaboratively, involves using in-depth knowledge and understanding of students, subject matter, curriculum, learning theory, principles of effective instruction and assessment, and classroom management and organization.
PD 2: Short-range planning	This dimension covers responsibilities related to periodic short-range planning of instructional units specified in the LRP. An instructional unit is defined as a set of integrated lessons designed to accomplish specific learning and developmental objectives related to a curricular theme, area of knowledge, or skill. Short-range planning of instruction may be conducted independently or collaboratively.
PD 3: Development of assessments	This dimension covers responsibilities related to planning, developing, and using assessments during instructional units. Assessments are considered any tools, activities, assignments, or procedures used to evaluate students' progress toward and achievement of the learning and developmental objectives of an instructional unit.

Table 1 (continued)

PD 4: Developing and maintaining high expectations of learners	This dimension covers responsibilities related to establishing and maintaining appropriately high expectations for student learning and development throughout the school year. Expectations provide the focus for student learning and may be communicated and clarified in various forms and at various times, as needed by students. Expectations may be related to general overall performance and participation, specific learning and developmental objectives of instructional units, performance and participation in specific instructional activities and events, and completing instructional assignments and tasks.
PD5: Instructional Strategies	This dimension covers responsibilities related to orchestrating instructional strategies during lessons and units to facilitate learning. Instructional strategies are considered any methods, techniques, activities, or assignments used by teachers to help students to acquire knowledge or skills and to achieve the learning and developmental objectives of instructional units.
PD 6: Providing Content	This dimension relates to the appropriateness of content provided during lessons and the manner in which it is presented to students. Teachers are responsible for all subject matter presented to students during instructional units; however, information may be drawn from or delivered by a number of sources including the teacher or other educators, students, and various instructional materials, resources, and technologies (e.g., texts, displays, videotapes, and computer software).
PD 7: Monitoring and enhancing learning	This dimension covers responsibilities related to monitoring and enhancing student learning and development during instructional units. Monitoring is defined as any methods teachers may use to collect information about students' understanding of instruction and content, as well as information about students' progress toward and achievement of specific learning and developmental objectives. Enhancing learning is defined as actions taken by teachers based on information collected from monitoring students to correct misunderstandings, reinforce learning, or to extend learning.
PD 8: Maintaining a learning environment	This dimension covers responsibilities related to creating and maintaining a student-centered environment that promotes and sustains learning and development. The dimension covers only those environmental factors that one would reasonably expect teachers to control.
PD 9: Managing the classroom	This dimension covers responsibilities related to managing student behavior, non-instructional routines, transitions between instructional events, and instructional materials and resources. Non-instructional routines are procedures for handling important functions that facilitate efficiency in the classroom (e.g., taking roll and collecting homework). Transitions between instructional events are periods of time during which teachers and students leave one activity and prepare for another (e.g., moving from whole group instruction to learning centers or cooperative groups).
PD 10: Fulfilling professional responsibilities	This dimension covers teachers' responsibilities beyond their individual classrooms. While teachers' primary responsibilities are related to addressing the needs of their students, as members of the teaching profession, teachers also have responsibilities to broader education organizations (e.g., schools and districts) which must serve the needs of all learners in the community.

Procedures for Data Analysis

After teachers were grouped according to the first independent variable, teacher certification method, comparisons were made to determine if there is a difference in dependent variable pedagogical knowledge. This comparison was made using the teacher's score on the PLT. Although grouped according to teacher certification method, comparisons were made to determine if there was a difference in teacher performance based on the teachers' evaluation. This comparison included the ten ADEPT performance dimensions and the sum of the teachers' ratings on the ten performance dimensions.

Finally, within the grouping of the first independent variable, teacher certification method, the teachers were grouped again based on the four independent variables related to demographics: age of the teacher, gender of the teacher, race of the teacher, and the highest degree earned by the teacher. Comparisons were made within each grouping based on the dependent variable, sum of the teachers' ratings on the ten performance dimensions.

For purposes of this study, age was defined as the chronological age at the time of the second year of teaching. The teachers were divided into four age categories: Category 1, 20-30 years old; Category 2, 31-40 years old; Category 3, 41-50 years old; and Category 4, 50 years or older. Race was defined by the categories on the initial application for teacher certification in South Carolina. These categories included: Black – not Hispanic, American Indian, Asian or Pacific Islander, Hispanic, White – not Hispanic, and other. For this study, race will be grouped in three categories: Category 1, White –not Hispanic; Category 2, Black – not Hispanic; Category 3, other. Gender was defined by two categories. Category 1 is male. Category 2 is female. The final demographic variable, highest degree earned, was defined using South Carolina's system for certification classification. South Carolina certification classifications include: bachelor's degree, bachelor's degree plus 18 graduate hours, master's degree, master's degree plus 30 graduate hours, and doctorate degree. For this study, highest degree earned was grouped in three categories: Category 1, bachelors and additional graduate hours; Category 2, masters degree; and Category 3, masters degree with additional graduate hours or doctorate.

The number of teachers, mean score, and standard deviation of the mean score was computed within each category created by the independent and dependent variables. A one-way or two-way analysis of variance (ANOVA) was performed as appropriate to determine if there was a significant difference between the teachers' performance in each category.

FINDINGS

This study was designed to compare teachers certified in South Carolina who were trained in two different methods: through traditional college preparation programs and through the Program of Alternative Certification for Educators (PACE). This study was limited to teachers who were completing their second year of teaching, based on employment contract level, during the 2003–04 academic year.

Research Question One

The intent of research question one was to determine if any differences exist between South Carolina alternatively and traditionally certified teachers' pedagogical knowledge. Pedagogical knowledge was measured with the Principles of Learning and Teaching (PLT) examination. The score range for this examination was 100-200 with an interval score of 1. The passing score in South Carolina was 165.

Of the 932 teachers for which the SDE provided data, 532 had taken the PLT. Ninety-nine were alternatively certified and 463 were traditionally certified, representing 60% of each group. The traditionally trained teachers who took the PLT were representative of the total traditional

teacher population in this study since 80% of the traditional teachers were female while 84% of the traditional teachers who took the PLT were female. Seventy-four percent of the traditionally trained teachers were White – not Hispanic while 76% of the traditionally trained teachers who took the PLT were White – not Hispanic. Finally, 65% of the traditionally trained teachers were in the 20-30 year old age range while 75% of the traditionally trained teachers who took the PLT were in this same age range.

The same was true for the alternatively trained teachers who took the PLT. Sixty-six percent of the alternatively trained teachers were female and 66% of the alternatively trained teachers who took the PLT were female. Forty-seven percent of the alternatively trained teachers were White – not Hispanic while 48% of the alternatively trained teachers who took the PLT were White – not Hispanic. Finally, 44% of the alternatively trained teachers were in the 20-30 year old age range while 45% of the alternatively trained teachers who took the PLT were also in this age range.

The PLT mean score and the standard deviation were computed for each certification method. A one-way analysis of variance (ANOVA) was performed to determine if there was a significant difference between the two groups pedagogical knowledge (see Table 2).

Table 2

Results of Comparison of Traditionally and Alternatively Certified Teachers' Performance on the PLT

Certification Method	N	Mean	Standard Deviation
Traditional	463	174.51***	9.967
Alternative	99	169.33	13.835

***p<.001

The ANOVA determined that there was a significant difference between the mean scores with a p-value of .001 indicating that at the .05 level, a significant difference existed between the two groups on basis of pedagogical knowledge. Traditionally certified teachers scored an average of 5.18 points higher on the PLT.

Interestingly, the mean score for both groups, alternatively and traditionally certified, was passing based on South Carolina's required test scores. However, the standard deviation indicated that there was a greater variance in scores for the alternative route participants. In fact, upon review of the frequencies for both groups, 9.71% of the traditional participants presented a failing score while 22.2% of the alternative route participants presented a failing score. So, even though both mean scores are passing, a higher percentage of alternative route participants failed the pedagogy examination.

Research Question Two

The intent of question two was to determine if any differences exist between traditionally and alternatively certified teachers on the basis of the ADEPT school district level evaluators' perceptions of their teaching performance. Data were analyzed for each of the 10 performance dimensions, as well as the sum of the teachers' performance on the 10 performance dimensions. Each performance dimension for each teacher was assigned a value of zero or one. A zero value indicated the individual teacher did not meet the standard for that performance dimension. A one value indicated the individual teacher did meet the standard for that performance dimension. The sum of the teachers' individual performance was valued 1-10 based on the sum of the individual performance dimensions.

Each teacher in the study had data for each of the 10 performance dimensions. Therefore, there were 768 traditional and 164 alternative teachers with performance data. The mean score and the standard deviation of the mean score were computed for each category for each of the 10 performance dimensions and for the sum of the performance dimensions.

The ANOVA performed on each of the performance dimensions and on the summary of the 10 performance dimensions determined there was not a significant difference between any of the mean scores at the .05 level. One performance dimension, developing and maintaining expectations of learners, was marginally significant with a p-value of .076 (see Table 3).

Table 3

Results of Comparison of Traditionally and Alternatively Certified Teachers' Performance on the Individual ADEPT Performance Dimensions and the Sum of the ADEPT Performance Dimensions

Performance Dimension	Certification Method	N	Mean	Standard Deviation	p-value
PD 1: Long Range Planning	Traditional	768	.96	.184	.928
	Alternative	164	.96	.188	
PD 2: Short Range Planning	Traditional	768	.98	.155	.674
	Alternative	164	.97	.172	
PD 3: Development of Assessments	Traditional	768	.97	.171	.112
	Alternative	164	.95	.228	
PD 4: Developing and Maintaining Expectations of Learners	Traditional	768	.96	.188	.076
	Alternative	164	.93	.251	
PD 5: Instructional Strategies	Traditional	768	.97	.178	.167
	Alternative	164	.95	.228	
PD 6: Providing Content	Traditional	768	.96	.188	.704
	Alternative	164	.96	.203	
PD 7: Monitoring and Enhancing Learning	Traditional	768	.96	.184	.235
	Alternative	164	.95	.228	
PD 8: Maintaining a Learning Environment	Traditional	768	.97	.171	.112
	Alternative	164	.95	.228	
PD 9: Managing the Classroom	Traditional	768	.94	.230	.397
	Alternative	164	.93	.261	
PD 10: Fulfilling Professional Responsibilities	Traditional	768	.97	.163	.832
	Alternative	164	.98	.155	
Summary of the Ten Dimensions	Traditional	768	9.66	1.304	.196
	Alternative	164	9.51	1.545	

While there was not a significant difference in the mean scores, for performance dimensions two, three, four, five, seven, eight, and nine, 1-3% more of the traditional teachers successfully met the performance dimension. The only performance dimension in which the alternative route teachers performed better was performance dimension 10.

Research Question Three

The intent of research question three was to determine if there were any differences between alternatively and traditionally certified teachers' performance when compared by the demographic variables of age, gender, race, and highest degree earned. Data were analyzed for the sum of the ten performance dimensions with appropriate comparisons for each demographic variable.

Age. The demographic variable age was divided into four categories. The number of teachers, mean score on the sum of the teachers' ratings, and standard deviation of the mean score were computed within each category. A two-way ANOVA was performed to determine if there was a significant difference between the two group's teaching performance based on age. The ANOVA revealed there were no significant differences in mean scores based on age at the .05 level (see Table 4)

Table 4

Results of Comparison of Traditionally and Alternatively Certified Teachers' Sum of the ADEPT Performance Dimensions Based on Age

Age	Certification Method	N	Mean	Standard Deviation
20-30 years	Traditional	502	9.74	1.132
	Alternative	72	9.54	1.618
31-40 years	Traditional	124	9.65	1.282
	Alternative	57	9.37	1.644
41-50 years	Traditional	104	9.5	1.539
	Alternative	26	9.54	1.392
51+ years	Traditional	38	8.97	2.272
	Alternative	9	10	.0

Gender. The demographic variable gender was divided into two categories. The number of teachers, mean score on the sum of the teachers' ratings, and standard deviation of the mean score were computed within each category. A two-way ANOVA was performed to determine if there was a significant difference between the two groups' teaching performance based on gender. The ANOVA revealed there were no significant differences in mean scores based on gender at the .05 level (see Table 5).

Table 5

Results of Comparison of Traditionally and Alternatively Certified Teachers' Sum of the ADEPT Performance Dimensions Based on Gender

Gender	Certification Method	N	Mean	Standard Deviation
Male	Traditional	151	9.51	1.423
	Alternative	55	9.44	1.398
Female	Traditional	617	9.69	1.271
	Alternative	108	9.54	1.626

Race. The demographic variable race was divided into three categories. The number of teachers, mean score on the sum of the teachers' ratings, and standard deviation of the mean score were computed within each category. A two-way ANOVA was performed to determine if there was a significant difference between the two groups' teaching performance based on race. The ANOVA revealed there were no significant differences in mean scores based on race at the .05 level (see Table 6)

Table 6

Results of Comparison of Traditionally and Alternatively Certified Teachers' Sum of the ADEPT Performance Dimensions Based on Race

Race	Certification Method	N	Mean	Standard Deviation
Black – not Hispanic	Traditional	166	9.56	1.471
	Alternative	75	9.55	1.5
White – not Hispanic	Traditional	565	9.68	1.280
	Alternative	77	9.45	1.651
Other	Traditional	37	9.78	.750
	Alternative	12	9.58	1.165

Highest Degree Earned. The demographic variable highest degree earned was divided into three categories. The number of teachers, mean score on the sum of the teachers' ratings, and standard deviation of the mean score were computed within each category. A two-way ANOVA was performed to determine if there was a significant difference between the two groups' teaching performance based on highest degree earned.

This analysis revealed there was a significant difference in the performance between

teachers who had a master's degree and teachers who had a master's with additional graduate hours or a doctorate (p-value = .037). On average, teacher's with a master's and additional graduate hours or a doctorate scored .601 points higher on the summary of their ADEPT performance. However, there were no significant differences in the performance of the teachers based on method of certification (see Table 7).

Table 7

Results of Comparison of Traditionally and Alternatively Certified Teachers' Sum of the ADEPT Performance Dimensions Based on Highest Degree Earned

Highest Degree	Certification Method	N	Mean	Standard Deviation
bachelor's/bachelor's and additional graduate hours	Traditional	529	9.66	1.317
	Alternative	105	9.63	1.171
master's	Traditional	204	9.62	1.361
	Alternative	45	9.07	2.30
master's and additional graduate hours or doctorate	Traditional	35	9.89	.530
	Alternative	14	10	.000

An additional one-way ANOVA was performed to determine if there were a significant difference in performance between traditional teachers who were certified on the undergraduate level or graduate level and alternatively certified teachers. This comparison yielded no significant difference in performance between traditionally or alternatively certified teachers regardless of the degree level by which the traditional teachers attained their certification (see Tables 8 and 9).

Table 8

Results of Comparison of Traditionally Certified Teachers on the Undergraduate Level and Alternatively Certified Teachers' Sum of the ADEPT Performance Dimensions

Certification Method	N	Mean	Standard Deviation
Traditional Undergraduate	523	9.65	1.267
Alternative	164	9.51	1.545

Table 9

Results of Comparison of Traditionally Certified Teachers on the Graduate Level and Alternatively Certified Teachers' Sum of the ADEPT Performance Dimensions

Certification Method	N	Mean	Standard Deviation
Traditional Graduate	133	9.65	1.365
Alternative	164	9.51	1.545

DISCUSSION

The intent of this study was to answer three research questions. The first question addressed differences in pedagogical knowledge based on the Principles of Learning and Teaching (PLT) examination. The analysis indicated there was a significant difference between the mean scores at the .05 level. Although the literature review for this study revealed no other research that specifically compared scores on pedagogical examinations, Hutton et al. (1990) found that alternative route teachers' passing rates on statewide content examinations in Texas were higher. In contrast, this study showed that traditionally trained teachers scored significantly better on the pedagogy examination.

One possible explanation for the better performance of traditional teachers on the pedagogy examination could be the extensive training received in traditional programs. Most traditional programs require numerous courses related to basic teaching pedagogy. At most, alternative teachers in their second year may have received 24 to 26 days of pedagogical training. This is supported by the fact that a higher percentage of traditionally trained teacher received a passing score on the PLT than alternatively trained teachers.

Alternative route participants in South Carolina must pass the content examination for admission to PACE, and traditionally trained teachers must pass the content examination as partial fulfillment of requirements for their initial certification. However, since the mean score for both groups was passing, the fact that both groups had to pass a standardized test to even enter the classroom may limit this study to those who do well on standardized tests.

The intent of research question two was to determine if any differences exist between traditionally and alternatively certified teachers on the basis of the ADEPT school district level evaluators' perceptions of their teaching performance. The analysis determined there was not a significant difference between any of the mean scores for the individual performance dimensions, nor the sum of the mean scores for the individual performance dimensions at the .05 level.

This contradicts a suggestion by Berry (2001) that indicated there was no evidence that content knowledge alone is enough for successful teaching. He indicated that there is no proof that alternatively certified teachers can organize their content knowledge in a method that is understandable to students. PACE participants enter the classroom with a degree in their content area and present passing scores on the required content area examinations. PACE participants complete the minimal training required while teaching in a classroom. However, based on the alternatively trained teachers' scores on the individual performance dimensions, they are performing in a similar and successful fashion as the traditionally trained teachers.

In addition, Jelmberg (1996) had found that, based on surveys of principals, traditionally trained teachers had better instructional and planning skills than alternatively trained teachers and Ovando and Trube (2000) found that principals felt that alternatively certified teachers had more instructional problems.

In a direct contradiction, this study found that 95% of alternatively certified teachers and close to 97% of traditionally certified teachers met the performance dimension for instructional strategies. Although more traditionally trained teachers met the standard for the performance dimension, there was not a significant difference in their performance.

This study also contradicts findings of Knight et al., (1990) in which results of a survey of students of alternatively and traditionally certified teachers indicated that students of traditionally certified teachers appeared more challenged by the academic work and pacing of the work. These students also felt that the traditionally certified teachers provided a more cooperative cohesive setting for learning. Granted, this study was based on the evaluator's perceptions rather than students' perceptions; but, there was no significant difference in the performance dimension of maintaining a learning environment. Ninety seven percent of traditionally certified teachers and 95% of alternatively certified teachers met this performance dimension.

There are also contradictions between this study and those of Grossman (1989) and McDiarmid et al., (1991) in which alternatively certified teachers had difficulty conveying content knowledge. For the 2003–04 academic year in South Carolina, 96% of the traditionally certified and 96% of the alternatively certified teachers met the performance dimension standard for providing content knowledge.

The results of this study appeared similar to a study in Georgia (Guyton et al., 1991), a study in Texas (Hutton et al., 1990), and a study in North Carolina (Hawk and Schmidt, 1989) that found no significant difference in alternatively and traditionally certified teacher performances based on statewide evaluations. Further, this study's findings support those of a study conducted by Martin and Shoho (1999) that found few statistically significant differences between alternatively and traditionally certified teachers in terms of classroom management. Ninety-four percent of traditionally certified teachers and 93% of alternatively certified teachers met the standard for the performance dimension related to classroom management.

One performance dimension, developing and maintaining expectations of learners, was marginally significant with a p-value of .076. Ninety-six percent of traditionally trained teachers were successful on this performance dimension as opposed to 93% of alternatively trained teachers. This appears similar to the studies of Houston et al. (1993) and Sandlin et al. (1992) that showed that although alternative teachers were more challenged in the beginning of the year with motivating students and managing time and paperwork, their performances were similar to traditionally certified teachers by the end of the year.

Perhaps South Carolina's alternative program does attract individuals with the similar motivations found by Salyer (2003) in a survey of alternatively certified teachers. This study reported that individuals who entered teaching through alternative routes desired to help students and to make a contribution to society, had prior experience with teaching and training, and were driven to share their passion for their content area. These same participants thought their previous careers had a unique influence on their teaching careers. They felt they could incorporate real-world knowledge into their instruction. These participants drew parallels between the management and organizational skill needed to manage departments and staff in their former careers and the management and organizational skills needed in the classroom. Perhaps these qualities contribute to reducing the expected or anticipated gaps in teaching performance for South Carolina.

Overall, why was the performance of alternatively certified and traditionally certified teachers in South Carolina so similar? Perhaps it is because this study was limited to teachers in their second year. Through a process of self-selection or through the choices made by school districts, individuals who could not perform may have not returned for a second year of teaching.

It is possible that the admission and training program criteria for South Carolina's alternative certification program and the program completion criteria for the traditional programs eliminate a large number of individuals who would not be successful in the state's teacher evaluation system. Both the alternative and traditional certification programs in South Carolina are based on teaching standards that directly correlate with the state ADEPT standards. Meeting these standards may limit the number of individuals who would be included in the second year evaluation results. Since South Carolina's alternative program is attracting individuals who have chosen a career in teaching as a second career, it may be attracting individuals whose individual motivations make up for the differences in teacher training.

Last, although all traditional training programs and the alternative program are based on national content standards, they represent a variety of instructional delivery methods. It is possible that there is not a significant difference in the performance of alternative route participants as compared to the traditional route participants because the traditional participants represent a variety of traditional program structures.

Regardless of the reasons, both groups demonstrated successful teaching practice in the classroom based on South Carolina's ADEPT TEAM evaluation system. This study supports the existence of South Carolina's alternative route in addition to South Carolina's traditional routes. Many of the higher education programs in South Carolina perform comparable to one another. This does not necessarily mean that all programs except the best performing program should be eliminated. It is important to recognize that different programs, with a variety of means, can reach the same effective ends and that all programs could benefit from the successes of each other.

The intent of research question three was to determine if there were any differences between alternatively and traditionally certified teachers' performance when compared by the demographic variables of age, gender, race, and highest degree earned. The analysis determined there were no significant differences in mean scores based on age, gender, or race at the .05 level.

Berry (2001) had indicated that while alternative certification was diversifying the work

force, there was no evidence that it was attracting more academically prepared individuals. The percentage of minorities and males in PACE is double the percentage of minorities or males in the state teaching population. Yet, in this study, alternatively and traditionally certified teachers performed without any significant differences regardless of age, gender, or race. Alternative certification in South Carolina is attracting more diverse age populations, males, and minorities and this diverse audience is performing the same as their traditionally trained counterparts.

The analysis of the demographic variable highest degree earned revealed there was a significant difference in the performance between teachers who had a master's degree and teachers who had a master's with additional graduate hours or a doctorate (p-value = .037). Teacher's with a master's and additional graduate hours or a doctorate scored .601 points higher on the summary of their ADEPT performance. However, this difference was true for both alternatively and traditionally certified teachers.

The analysis of the difference in performance between traditional teachers who were certified on the undergraduate level or graduate level and alternatively certified teachers yielded no significant difference in performance between traditionally or alternatively certified teachers regardless of the degree level in which the traditional teachers attained their certification.

The purpose of this study was to determine if any teaching performance differences exist between traditionally and alternatively certified teachers. The study revealed that the only difference between the two groups was in their performance on the PLT examination. Even then, the mean score for both groups was passing. The only other significant difference, based on education level, was true for both groups.

CONCLUSION AND RECOMMENDATIONS

The following implications and recommendations were based on the findings of this study.

Implications for practice for the continued effective implementation of an alternative route for certification in South Carolina:

1. This study indicates South Carolina's alternative route to teacher certification is placing individuals equally competent as traditionally trained teachers into South Carolina's classrooms. The alternative route is one method of addressing the teacher shortage in South Carolina.
2. To further enhance evaluative detail and accuracy, feedback from principals and other administrators outside the context of the ADEPT TEAM evaluation can be used to provide candid accounts of alternative and traditional teachers' performance through a separate mechanism.
3. This study indicates the current admission and training criteria for PACE are effective since the alternatively trained teachers are performing as well as the traditionally trained teachers.
4. To further understand PACE as a teacher education program, the characteristics of effective alternative and traditional programs as well as the characteristics of effective participants should be studied and incorporated into teacher training programs. This includes continuing to monitor the current alternative program to ensure that teachers are being trained to work in all environments, not only in the context of the alternative route placement.
5. To further understand PACE as an alternative route, the expectations and requirements of traditional programs as opposed to the state's alternative programs should be reviewed to determine if there are standards the alternative program is not meeting. In addition, this review may lead to methods for traditional programs to offer alternative routes.

Since there are many variances in the traditional teacher training programs, further research should be conducted to compare the mean PLT and ADEPT scores for each

traditional training program as well PACE to determine how the alternative route participants perform in comparison to the individual teacher training programs. Is PACE an alternative method of delivery or is it truly an alternative certification program? Since the alternative program is limited to specific critical geographic and critical content areas, additional research should be conducted to determine if the teaching performance is comparable in those specific areas. Additional research should be conducted to attempt to isolate the qualities of the participants versus the quality of the training in PACE that allowed the participants in this study to perform equivalent to traditional teachers. For example, how does the fact that PACE participants operate in a cohort contribute to their success in the classroom? In general, research should focus on identifying the components of a high-quality alternative program. Studies should be conducted to determine why first year teachers in South Carolina often do not return for a second year of teaching. This study appears to indicate that those who remain do meet the standard for teaching. However, this study does not indicate whether the individuals who did not return did so because of lack of teaching ability or some other issue with the teaching profession. And in-depth study should compare the preliminary evaluations of traditional and alternatively certified teachers to determine if there were more concerns in the beginning of the year. And, if there were, how were they corrected by the final evaluation? Were there more differences in the performance of the two groups during the preliminary evaluations than during the final evaluations? And, since the mean PLT score was passing for both groups, additional research should be conducted to determine if there is a correlation between a higher PLT score and more effective teaching or a correlation between a higher PLT score and successful teaching performance evaluations. Also, PLT comparisons should be made again after program year three.

As is true with all methods and levels of teacher certification, extensive research needs to be conducted to determine the link between the teacher and student achievement. Are there characteristics of teachers that may be more effective in specific settings? If so, are the traditional and alternative training programs preparing teachers for these contexts? Are students with traditionally or alternatively trained teachers achieving academic growth at the same level? Last, to reduce as many of the external factors as possible and to overcome many of the criticisms of research on alternative programs, additional research should be conducted that pairs alternatively and traditionally trained teachers of similar age, race, gender, content area and teaching location to compare performance and student outcomes.

Studies that compare the performances of alternatively versus traditionally certified teachers are really another stage in the debate over effective teaching. Teacher education programs, both alternative and traditional, vary greatly nationwide. Previous studies of four-year and five-year teacher education programs as well as alternative routes to certification have not been able to separate the effects of courses and programs from the characteristics, perspectives, and abilities that prospective teachers bring to their teacher training programs. “Research on teacher education needs to be able to distinguish enrollment from learning effects and to distinguish learning effects within teacher education programs from the influence of the setting in which graduates teach” (Zeichner and Conklin, 2005, p. 699).

A challenge with a study such as this is that it is difficult to generalize the results nationwide. This study has shown that alternatively trained teachers in South Carolina are performing to the same standard as traditionally trained teachers in South Carolina. Unless a program was specifically structured like PACE, it cannot be assumed the same would be true of alternative and traditional programs nationally. Regardless of how they are certified, teachers are critical to the learning process. Today’s schools have higher standards for a more diverse group of students. Effective

teachers must have a knowledge base of their subject matter and pedagogical processes that allow them to organize and present concepts to students with a variety of learning levels and learning styles (Darling-Hammond, 2000). And, given the need for diverse teacher candidates who can select to be prepared from multiple pathways, the challenge of all teacher educators is to ensure a highly effective teacher is in every classroom.

APPENDIX A
Definitions

ADEPT	Assisting, Developing, and Evaluating Professional Teaching. South Carolina's system for teacher evaluation.
Alternative Route to Certification	Certification programs targeted toward individuals who have a bachelor's or master's degree but who have not completed a traditional teacher education program. Participants usually enter the classroom while completing the professional certification process.
Certification	Verification required by South Carolina to ensure a teacher has met the requirements for teaching.
CNCP	Critical Need Certification Program. South Carolina's original alternative route to certification. The program requirements and name were changed in 2001.
Met/Not Met	The rating a teacher receives on each of the ten ADEPT Performance Dimensions as well as on the overall ADEPT performance.
Out-of-Field Permit	A permit issued to teachers certified in other area(s) that allows that individual to teach in a content area for which they have minimal content training.
PACE	Program of Alternative Certification for Educators. South Carolina's alternative route to teacher certification.
Performance Dimensions	Ten areas of evaluation in the ADEPT process.
Performance Evaluations	As part of the ADEPT system, a teacher's performance is evaluated to determine if the teacher is meeting the standard for effective teaching performance in South Carolina.
Traditional Route to Certification	Any state approved teacher education program offered through a college or university for the purpose of preparing teachers for certification and a career in teaching. Traditional programs include content preparation, pedagogical coursework, and supervised student teaching.

REFERENCES

Anderson, L. W. (2003). *An external review of South Carolina's Assisting, Developing, and Evaluating Professional Teaching (ADEPT) program*. Columbia, SC: Anderson Research Group.

Ballou, D. (1998). Alternative certification: A comment. *Educational Evaluation and Policy Analysis*, *20*, 313-315.

Ballou, D. & Podgursky, M. (1998, Summer). The case against teacher certification. *The Public Interest,* 17–29.

Berliner, D. C. (2000). A personal response to those who bash teacher education. *Journal of Teacher Education, 51*, 358-371.

Berry, B. (2001). No shortcuts to preparing good teachers. *Educational Leadership, 58*(8), 32-36.

Bradshaw, L. (1998, April). *Policy, politics, and contradictions of alternative teacher certification.* Paper presented at the American Educational Research Association Annual Meeting, San Diego, CA.

Brown, C., Vaughn, C. & Smith, J. (2004). Constructions of teaching: Alternative certification and the education profession. *Action in Teacher Education, 18*(1), 39–48.

Carey, N. B., Mittman, B. S., & Darling-Hammond, L. (1988). Recruiting mathematics and science teachers through nontraditional programs: A survey. (RAND Note N-2736-FF/CSTP), Santa Monica, CA: The RAND Corporation. (ERIC Document Reproduction Service No. ED 300 233).

CERRA Center for Educator Recruitment, Retention, and Advancement (2005). *Teacher Supply and Demand Survey* retrieved 2005, http://www.cerra.org/downloadablecontent.asp.

Corbin, W. (1990). *South Carolina's Alternative Certification Program Handbook*. Rock Hill, SC: Winthrop University, Critical Need Certification Program.

Darling-Hammond, L. (1990). Teaching and knowledge: Policy issues posed by alternative certification for teachers. *Peabody Journal of Education, 67*(3), 123–154.

Darling-Hammond, L. (2000). How teacher education matters. *Journal of Teacher Education, 51*, 166–173.

Darling-Hammond, L. & Youngs, P. (2002). Research and rhetoric on teacher certification: A response to "Teacher Certification Reconsidered." *Education Policy Analysis Archives* 10(36). Retrieved September 12, 2002 from http://epaa.asu.edu/epaa/v10n36.html.

Darling-Hammond, L. & Sykes, G. (2003). Wanted: A national teacher supply for Education: The right way to meet the 'highly qualified teacher" challenge. *Education Policy Analysis Archives* 11(33). Retrieved September 16, 2003 from http://epaa.asu.edu/epaa/v11n33.html.

Dial, M & Stevens, C. J. (1993). Introduction: The context of alternative teacher certification. *Education and Urban Society, 26*(1), 4–17.

Dill, V. S. (1996). Alternative teacher certification. In J. Sikula, T. J. Buttery, & E. Guyton, (Eds.), *Handbook of research on teacher education* (pp. 932-959). New York: Macmillan.

Feistritzer, C. E. (1994). The evolution of alternative teacher certification. *The Educational Forum, 58*, 132–138.

Feistritzer, C. E., & Chester, D. T. (2006). *Alternative teacher certification: A state-by-state analysis, 2003*. Washington, DC: National Center for Education Information.

Fenstermacher, G. (1990). The place of alternative certification in the education of teachers. *Peabody Journal of Education, 67*(3), 155–185.

Franklin, R., Pendegrass, J., Tu, P., & Veitch, J. (1999). *Help wanted: One million good women and men*. Retrieved May 24, 2001, from http://horizon.unc.edu/edsp287/1999/team/shortage/index.html.

Gimbert, B., Cristol., D., & Sene, A. (in press). The Impact of Teacher Preparation on Student Achievement in Algebra in a 'Hard-to-Staff' Urban preK-12-university Partnership. *School Effectiveness and School Improvement: An International Journal of Research, Policy and Practice.*

Goldhaber, D. D. & Brewer, D. J. (2000). Does teacher certification matter? High school teacher certification status and student achievement. *Educational Evaluation and Policy Analysis, 22*, 129–145.

Grossman, P. L. (1989). A study in contrast: Sources of pedagogical content knowledge for secondary English. *Journal of Teacher Education, 40*, 24–31.

Guyton, E., Fox, M. C., & Sisk, K. A. (1991). Comparison of teaching attitudes, teacher efficacy, and teacher performance of first-year teachers prepared by alternative and traditional teacher education programs. *Action in Teacher Education, 13*(2), 1–9.

Haberman, M. (1994). Preparing teachers for real world urban schools. *The Educational Forum, 58*, 162–168.

Hawk, P. & Schmidt, M. W. (1989). Teacher preparation: A comparison of traditional and alternative programs. *Journal of Teacher Education, 40*, 53–58.

Houston, W. R., Marshall F., and McDavid, T. (1993). Introduction: The context of alternative teacher certification. *Education and Urban Society, 26*(1), 78–89.

Hussar, W. J. (1999). *Predicting the need for newly hired teachers in the U.S. to 2008–09*. Washington, DC: National Center for Education Statistics.

Hutton, J. B., Lutz, F. W. & Williamson, J. L. (1990). Characteristics, attitudes, and performance of alternative certification interns. *Educational Research Quarterly, 14*(1), 38–46.

Ingersoll, R. M. (2001). *A different approach to solving the teacher shortage problem*. Seattle: Center for the Study of Teaching and Policy.

Ingersoll, R. M. & Smith, T. (2003). The wrong solution to the teacher shortage. *Educational Leadership, 60*(8), 30–33.

Jacobson, L. (2005, February 23). Alternative routes attracting unlikely candidates. *Education Week*, p. 3.

James, T. & McNiece, E. (1991, August). *State approved alternative certification: Are these programs changing the face of teacher preparation?* Paper presented at the Summer Workshop of the Association of Teacher Educators, Minot, ND.

Jelmberg, J. (1996). College-based teacher education versus state-sponsored alternative programs. *Journal of Teacher Education, 47*, 60–66.

Johnson, S. M., Birkeland, S. E., & Peske, H. G. (2005) Life in the fast track: How states seek to balance incentives and quality in alternative teacher certification programs. *Educational Policy*, *19*, 63-89.

Kennedy, M. M. (1991). Some surprising findings on how teachers learn to teach. *Educational Leadership, 49*(3), 14–17.

Knight, S. B., Owens, E. W., & Waxman, H. C. (1990). Comparing the classroom learning environments of traditionally and alternatively certified teachers. *Action in Teacher Education, 12*(4), 29–34.

Laczko-Kerr, I. & Berliner, D. C. (2002). The effectiveness of "Teach for America" and other under-certified teachers on student academic achievement: A case of harmful public policy. *Education Policy Analysis Archives,* 10(37). Retrieved September 12, 2002 from http://epaa.asu.edu/epaa/v10n37/.

Laczko-Kerr, I. & Berliner, D. C. (2003). In harm's way: How under-certified teachers hurt their students. *Educational Leadership, 60*(8), 34–39.

Martin, N. & Shoho, A. (1999, April). Beliefs regarding classroom management style: Differences between traditional and alternatively certified teachers. Paper presented at the American Educational Research Association Annual Meeting. Montreal, Canada.

McDiarmid, G. W. & Wilson, S. M. (1991). An exploration of the subject matter knowledge of alternate-route teachers: Can we assume they know their subject? *Journal of Teacher Education, 42*, 93–103.

Miller, J. W., McKenna, M. C., & McKenna, B. A. (1998). A comparison of alternatively- and traditionally-prepared teachers. *Journal of Teacher Education, 49*, 165–176.

Ovando, M. N. & Trube, M. B. (2000). Capacity building of beginning teachers from alternative certification programs: implications for instructional leadership. *Journal of School Leadership, 10*, 346–366.

Raymond, M., Fletcher, S. H., & Luque, J. (2001). *Teach for America: An evaluation of teacher differences and student outcomes in Houston, Texas*. Stanford, CA: Center for Research in Education, Diversity, and Excellence.

Roth, R. A. (1986). Alternate and alternative certification: Purposes, assumptions, and implications. *Action in Teacher Education, 8*(2), 1–6.

Salyer, B. (2003). Alternatively and traditionally certified teachers: The same but different. *NASSP Bulletin*, *87*, 16–27.

Sandlin, R. A., Young, B. L. & Karge, B. T. (1992). Regularly and alternatively credentialed beginning teachers: Comparison and contrast of their development. *Action in Teacher Education, 14*(4), 16–23.

Shen, J. (1997). Has the alternative certification policy materialized its promise? A comparison between traditionally- and alternatively-certified teachers in public schools. *Educational Evaluation and Policy Analysis, 19*, 276–283.

Shen, J. (1998a). Alternative certification, minority teachers, and urban education. *Education and Urban Society, 31*(1), 30–41.

Shen, J. (1998b). The impact of alternative certification on the elementary and secondary public teaching force. *Journal of Research and Development in Education, 32*(1), 9-16.

Stoddart, T. (1990). The Los Angeles unified school district intern program: Recruiting and preparing teachers for an urban context. *Peabody Journal of Education, 67*(3), 84–122.

Stoddart, T. & Floden, R. E. (1995). *Traditional and alternative routes to teacher certification: Issues, assumptions, and misconceptions*. New York: National Center for Research on Teacher Learning.

Sundstrum, K. & Berry, B. (1989). *Assessing the initial impact of the South Carolina Critical Need Certification Program*. Columbia, SC: Blackwater Associates.

The Teaching Commission. (2004). *Teaching at risk: A call to action.* New York, NY: Author.

U.S. Department of Education. (2004). *Meeting the highly qualified teachers challenge: The secretary's second annual report on teacher quality.* Washington, DC: Author.

Wilson, S., Floden, R. & Ferrini-Mundy, J. (2001). *Teacher preparation research: Current knowledge, gaps, and recommendations*. Seattle, WA: Center for the Study of Teaching and Policy.

Zeichner, K. & Conklin, H. (2005). Teacher education programs. In M. Cochran-Smith and K. M. Zeichner (Eds.), *Studying teacher education* (pp. 111-156). Mahwah, NJ: Erlbaum.