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## The Relationship of Teacher Route to Certification to Student Outcomes on Statewide Social Studies Assessment

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THE RELATIONSHIP OF TEACHER ROUTE TO CERTIFICATION TO STUDENT  
OUTCOMES ON STATEWIDE SOCIAL STUDIES ASSESSMENT

by

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May 2008

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## ABSTRACT

### THE RELATIONSHIP OF TEACHER ROUTE TO CERTIFICATION TO STUDENT OUTCOMES ON STATEWIDE SOCIAL STUDIES ASSESSMENT

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Old Dominion University, 2008  
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Public school divisions face daunting challenges today. One such challenge is the ability to recruit and retain highly qualified and effective teachers. Endemic teacher shortages coupled with escalating national education standards make it imperative that school divisions hire and retain teachers who can positively and immediately impact student achievement. Schools without effective teachers face possible sanctions, which could include re-staffing of the school, parental choice that would allow the student population to attend more successful schools and loss of funds.

At the same time, colleges and universities have begun alternative certification programs in an effort to compensate for teacher shortages. Programs such as Career Switchers and Troops to Teachers represent efforts to address teaching shortages by targeting non-traditional teacher candidates. The use of alternative programs and non-traditional candidates has sparked concern and debate among education analysts, especially those who favor traditional teacher preparation programs.

This study surveyed 165 secondary-level social studies teachers in two urban divisions in Virginia to determine the association between student scores on statewide examinations and teacher route to certification... Using a one-way ANCOVA, students'

raw scale Standards of Learning social studies examination scores and teacher route to certification were analyzed. Results indicated no difference between the three groups (Career Switchers, Troops to Teachers and Traditional Licensure Programs). Limitations and recommendations for future research are discussed.

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This dissertation is dedicated to the most cherished ones in my life. Specifically, this goes out to my parents for never allowing me quit, and my brother and sister for watching me when my parents were not around. But most importantly, I must thank my wife, and children for their sacrifices. Without their support, this would not have been possible.

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## CHAPTER 1

### INTRODUCTION

#### Background to the Problem

##### *Overview*

This introductory chapter discusses the current dilemmas facing public school administrators across the nation and solutions that have been proposed over the past few decades. With the era of accountability on the shoulders of principals and superintendents, it is imperative that qualified educators are secured and retained. At the conclusion of this chapter, the problem statement is presented and the significance of the study discussed. The research question and hypothesis will be posed, followed by the literature review in chapter two.

##### *Teacher Shortages*

The shortage of qualified teachers is a problem endemic to the nation (Neild, Useem, Travers, & Lesnick, 2003). Public school administrators must focus on recruiting promising teachers and retaining the highly qualified teachers currently employed by their school divisions. One-third of newly hired teachers leave within three years while almost half leave the profession after five years (Ingersoll, 2001; Neild, Useem, Travers, & Lesnick 2003). Teachers may enter the profession with altruistic motives, but leave for the oft-cited realities of poor pay and working conditions. Reasons reported by former educators for leaving include a higher salary/benefit in non-education jobs in the private sector, the availability of retirement, and classroom level obstacles (Ingersoll, 2001). Additional reasons cited by teachers who are leaving the profession include safety,

support from administration and the inability to effectively manage their classes (Marzano, Marzano, & Pickering, 2003; Perie & Baker, 1997).

Johnson and Kardos (2005) noted that the number of teachers with at least 20 years teaching experience had increased from 18% in 1971 to 38% in 2001. As teacher shortages increase and more experienced teachers leave the profession, public school divisions must act quickly to fill these positions with effective educators. Krei (1998) reported that human resource personnel and principals were finding it increasingly difficult to acquire qualified prospective teachers because the applicant pool was diminished. In one study, researchers found “60 percent of responding districts allowed individuals to teach under emergency permits, 60 percent used long-term substitutes, 37.5 percent hired teachers with certificate waivers, and 35 percent of districts recognized internship programs or permits” (Urban Teacher Collaboration, 2000, p. 17). For most public school divisions, recruitment and retention are equal concerns. Kelley (2004) stated, the “retention of a competent teaching force is a growing concern among the nation’s educators and policy makers” (p. 438). In conjunction with compliance with federal mandates for accountability in education, recruiting and retaining effective teachers is a paramount need as there will be “no policies that can improve schools if the people in them are not armed with the knowledge and skills they need” (Owings & Kaplan 2003, p. 77). There are also financial implications. Benner (2000) and Berry (2005) have stated that it will take school divisions approximately \$11,000 to \$12,500 per teaching position to recruit and replace those who have left the education profession.

Virginia is no exception to the problem of teacher shortages. For many years, Virginia legislators, administrators and division superintendents have sought innovative

ways to replace valuable staff members who have left the profession. Major shortages have been noted in the fields of mathematics, special education, English as a second language and social studies (Virginia Department of Education, 2007).

### *Alternative Certification Programs*

Alternative Certification Programs (ACPs) were developed to ameliorate and diversify the pool of available teachers. In 2004 - 2005, there were approximately 50,000 teachers who completed their licensure requirements through ACPs and in 2005-2006 there were almost 59,000 (Feistritz, 2007). Educators who received teaching licenses through ACPs often cited the cost and the length of the program when compared to going back to college for a license, and the salary and benefits that accompanied the job as major reasons for signing up for ACPs (Feistritz, 2005a).

However, since the inception of ACPs, a debate has raged between proponents of traditional teacher preparation programs and those who support alternative routes. Laczko-Kerr and Berliner (2002) found a significant difference between traditionally certified and nontraditionally certified teachers and concluded that students of traditionally certified teachers performed better on academic tests while Miller, McKenna, and McKenna (1998) concluded that there were no significant differences between traditionally certified and alternatively certified teachers in their students' Iowa's Math and Reading Test of Basic Skills scores.

Adding to the vitriol of the debate is a paucity of conclusive evidence as to the effectiveness of teachers who use ACPs (Legler, 2002). Researchers have cited lack of useable evidence to determine whether there are any significant differences between ACPs and Traditional Licensure Programs (TLPs):

At present, no research definitively answers the question of how well students achieve with alternatively certified teachers as compared with traditionally certified teachers...since each state determines its own teacher certification criteria, student to student comparisons are analogous to comparing the proverbial 'apples to oranges' (Owings et al. 2005, p. 19-20).

Many published studies on this topic failed to meet the scientific rigor needed to draw conclusions whether teachers who used ACPs impacted student achievement when compared to those teachers who have received their teaching licenses via TLP (Podgursky, 2004). Reasons cited by researchers include lack of longitudinal data available and faults with the design of the studies (Podgursky).

#### *The Accountability Mandates of No Child Left Behind*

In addition to the dilemma of hiring certified teachers, school divisions face demands from state and federal governments that all students demonstrate proficiency by passing statewide tests, a requirement that holds all educators accountable, from division superintendents to classroom educators. *No Child Left Behind* (NCLB) mandates that all students must have a quality education and be taught by highly qualified educators. Should schools or divisions not make accreditation or adequate yearly progress (AYP), sanctions are enforced and monies that divisions have allocated for current and future operating budgets are withheld. Teacher recruitment and retention issues could be exacerbated if salaries and resources are not in line with competing divisions. As a result, the ability to maintain AYP or achieve accreditation could be in jeopardy.

NCLB is the reauthorization of President Lyndon B. Johnson's *Elementary and Secondary Education Act* (1965), which was the first time that the federal government

provided direct funding the states to assist in educating specified groups of students (Yell, 2006) and tied accountability from the Elementary and Secondary Education Act to the funds allocated to local school divisions. Several decades later and amid changes from federal government legislation, the Elementary and Secondary Education Act was reauthorized as NCLB. The primary purpose of NCLB is to address inequities in student achievement. It addresses these disparities through AYP. AYP mandates student mastery of high academic standards in reading, math and science by the 2013 – 2014 academic year, the presence of highly qualified teachers in each classroom, safe schools and classrooms, English proficiency for students identified as limited English proficient, and graduation from high school for all students (Yell, 2006). Public school divisions that meet AYP benchmarks will continue to receive federal monies that are a critical in yearly budgets. Should those monies be withdrawn due to the inability to make AYP, local cities and counties will have to supply the difference. In a typical school division budget, federal monies given to local school divisions range from 6 – 10% of their yearly budgets. Further, local school division funding is dependent on the size of the local government and its economic base.

Funding for NCLB has also become an issue for all of the nation's schools. In 2005, \$22 billion was given to states to implement NCLB. Virginia received \$23 million (U.S. Department of Education, 2006). By accepting NCLB funds, states are required to create education standards and have students pass achievement tests. States and local education agencies agree to meet escalating AYP benchmarks in order to continue receiving federal dollars.



### *Adequate Yearly Progress*

Virginia tests student proficiency on the Standards of Quality through Standards of Learning (SOLs) assessments. Since their implementation in 1997, the SOLs have played a vital role in helping teachers align what is being taught in the classroom to the Standards of Quality. Students are tested yearly starting in third grade through eleventh grade. Using the SOL framework, released test items, and disaggregated data, teachers are able to tailor their teaching to test items in order to increase test scores (Virginia Department of Education, 2001). For any Virginia school to be fully accredited by the Virginia Department of Education, 70% of the student body at the middle and high school levels must pass all tests. At the elementary level, 70% of the students must pass the core subjects with the exception of third and fifth grade, where three fourths of the students must pass English and half of the third graders must pass science and history (Stark, 2006). A school that does not meet the 70% pass rate for all designated core subjects will be labeled as *not accredited - needs improvement*. A school's adequate yearly progress (AYP) status is determined through the SOL tests and other indicators set by the state. In Virginia, all core subjects are tested, but only mathematics and language arts are reported through NCLB. Science and attendance are listed as other performance indicators that administrators may choose; however, in 2007 science was added as another possible annual performance objective. School principals may choose science scores in lieu of the attendance requirement.

To meet AYP attendance requirement, 95% of the student body and all four subgroups (special education, economically disadvantaged, minority, and limited English proficiency) must be present for testing. Attendance is based upon the average daily

attendance (ADA), which is the actual number of students present divided by the average daily membership (ADM). The ADM is the average number of students enrolled at that school. For example, Captain John Smith High School's ADA is 1900 and the ADM is 2000. Calculating the attendance would give a 95% attendance rate when the ADA is divided by the ADM.

In the 2005-2006 school year, 69% of students were required to pass language arts and 67% of students needed to pass mathematics in the respective subgroups for the school to make AYP. For 2006-2007, schools must have 75% and 77% of their students pass respectively. High school graduation rate is another indicator for AYP. The current graduation rate for high schools to make AYP in this category is 61% (Virginia Department of Education, 2007). Table 1 illustrates the current projections for making AYP in math, language arts.

Table 1

*AYP Proficiency Scores for Mastery*

Year	Math	Language Arts
2005-2006	67	71
2006-2007	71	73
2007-2008	75	77
2008-2009	79	81
2009-2010	83	85
2010-2011	87	89
2011-2012	91	93
2012-2013	95	97
2013-2014	99	100

Note: From the Virginia Department of Education. *School Improvement Planning Opening Doors to Improved Student Achievement*. Retrieved 6/1/2007, from Virginia Department of Virginia Department of Education Web Site:  
[www.doe.virginia.gov/VDOE/SchoolImprovement/opening-doors-achievement.ppt](http://www.doe.virginia.gov/VDOE/SchoolImprovement/opening-doors-achievement.ppt).

*Sanctions for not making Adequate Yearly Progress*

Sanctions will be applied to schools that fail to achieve accreditation or have two consecutive years of failure to make AYP. As a result, an academic review team (comprised of local officials who are state certified and Virginia Department of Education personnel who have experience in turning around low performing schools) is placed at the failing school. All such schools must submit a plan of remediation to the Department of Education describing where the deficiency took place and what

procedures will be implemented to increase scores to the 70% SOL accreditation mark or the respective AYP cut score. After four consecutive years, a school that fails to make accreditation or AYP, could be re-staffed and parents given the option to transfer their children to another school at the division's expense, in addition to receiving supplemental services, including tutoring for their children. It is also possible that state/federal funding to the division could be reduced as well. Awareness of federal sanctions requires principals focus on hiring and retaining quality teachers, among other preventative measures.

### *Problem Statement*

Alternative certification programs, along with other measures and initiatives, can address the recruitment, retention and shortage issues that face public school divisions. However, in light of the accountability standards imposed by current federal law, how effective are alternatively certified teachers? This research explores the question of whether a difference exists in the student achievement of teachers who were prepared to teach by traditional licensure programs (TLPs) or by certification (ACPs). The impact of number of years taught and the teacher age will also be examined.

### *Significance of Study*

This study is significant to educators and to administrators who must prepare educational leaders and teachers for all school divisions, including those who serve urban schools. With shortages in evidence and predicted escalation, urban divisions serving disadvantaged students will see more vacancies than rural school districts, particularly in the areas of English as a Second Language, mathematics, science and special education (Schoon & Sandoval, 2000). As a result, the ability to close the achievement gap

becomes increasingly difficult for urban divisions. Recruiting New Teachers (2000) concluded that urban divisions hire non-certified teachers in four out of every five hires, of which three out of five hires are long-term substitutes. Further, over 10% of new hires come into the profession with no prior teacher training experience.

Teachers who do not hold full credentials often teach the students who are at the greatest disadvantage (students with disabilities, low-income students and African-American students), making it almost impossible to create equity for all children (Darling-Hammond, 1997). Howard (2003) stated, "Because of the current dearth of teachers, students in urban and low-income areas are more likely than any other group of students to come in contact with under-prepared and non-certified teachers" (p. 143). Further, Ingersoll (1996) examined the types of students being taught by teachers who were not certified in their respective subject areas and concluded that students who were economically disadvantaged were more likely to be taught by teachers who were unqualified. In this study, Ingersoll (1996) defined unqualified teachers as those teachers in the secondary level classrooms with no more than a minor in the subject matter that they were teaching. Too often, urban school divisions have problems securing qualified teachers.

Hynes and Socoski (1991) researched the difficulties in attracting promising teachers. They concluded that 140 Pennsylvania student teachers preparing to teach in urban areas had two perceptions: (1) there were fewer positive school division attributes in urban divisions than in rural or suburban areas and (2) rural areas were peaceful places to teach. Additionally, Feistritzer (1996) noted that teachers who held licenses from traditional colleges and universities preferred to teach where they lived, typically

suburban areas, while only 4% said they would have preferred to teach in an urban school. Howard (2003) proposed that as numerous teachers come from non-urban backgrounds, it is more difficult for them to relate and understand some of the daily hardships their students encounter. As a result, no instructional connection is made between the teachers and the students.

Not only must educational leadership programs prepare leaders and teachers for all demographic areas, but also many of those same teachers will become directly responsible for the accountability data that determine their schools' accreditation status, which, in turn, may impact their own jobs. Federal law demands that all schools succeed and those that fail may face sanctions, including replacement of staff (Mintrop & Trujillo, 2005). Without studies to determine effectiveness of ACP and TLPs, principals may make hiring decisions without adequate data.

#### *Research Question*

Is there a significant difference between those teachers who were either prepared through alternative certification programs (i.e., Career Switchers and Troops to Teachers) or through traditional licensure programs (undergraduate degree with licensure) on student achievement as measured by the Standards of Learning tests in social studies, controlling for years of teaching experience and age?

#### *Hypothesis*

There is no significant difference in the type of program (ACP or TLP) that teachers completed for certification and achievement in their students' SOL social studies scores when controlling for years of teaching experience and age. The null hypothesis will be tested at the .05 level.

### *Definitions*

The following definitions will be used in this study:

#### *Adequate Yearly Progress (AYP)*

The measurable component of the No Child Left Behind (NCLB) legislation enacted in 2002, which assesses performance in language arts and mathematics in grades 3 – 8 and on end of course examinations at the high school level. Ninety-five percent of the students enrolled in their respective school must take the state test each year. AYP applies to all students and the following distinct subgroups: minorities, economically disadvantaged students, special education students and English as a Second Language (ESL) learners. Minimum passing scores increase yearly and continue to rise until 2013 when they will reach 100% as required by the law.

#### *Alternative Certification Program (ACP)*

A program that is “a means to a teaching certificate that falls outside traditional full-time, baccalaureate or post baccalaureate teacher prep programs not including emergency certification,” often to cover a shortage of certified teachers (Community College Policy, 2003, p. 1).

#### *Career Switcher (CS)*

A program originally created in 2000 by the Virginia Department of Education (VDOE) to assist military personnel in becoming certified teachers. A primary goal of CS is to focus on critical need areas in grades 6-12. Several college and university campuses have CS programs and partner with local school divisions. Since 2000, CS has allowed prospective educators from the military and other professions to earn a professional or postgraduate professional teaching certificate following successful

completion of the requirements (Virginia Department of Education, n.d.). The requirements for enrollment in the CS program include a bachelor's degree and passing Praxis I and II scores. Praxis I and II are standardized tests given to verify basic and content-specific knowledge. Individuals that seek teaching licensure must have both coursework and passing Praxis scores.

*Highly Qualified Teacher (HQT)*

A teacher who possesses the minimum of a bachelor's degree, current state licensure for the subjects he or she teaches, and mastery in all the subjects he or she teaches, as demonstrated by assessments such as the Praxis II tests or other approved methods (U.S. Department of Education, 2001).

*Traditional Degree with Licensure Program (TLP)*

An approved four-year college or university undergraduate degree program that allows students to obtain a teaching license with their majors or minors.

*Troops to Teachers Program (TTT)*

An approved funding program designed for retired military personnel who have served a minimum of six years of service and are willing to teach in schools that have at least 20% of their student population on free and reduced lunch. TTT's focus is coverage of the shortages in mathematics, science, special education and other critical areas. Twenty-three percent of Virginia's schools divisions are eligible for the program. TTT originated in 1994 and provides a \$5,000 stipend to eligible candidates to assist with college tuition (Virginia Troops to Teachers, n.d.).



*Virginia Standards of Learning (SOLs)*

Virginia's statewide assessments that "describe the commonwealth's expectations for student learning and achievement in grades K-12 in English, mathematics, science, history and social science, technology, the fine arts, foreign language, health and physical education, and driver education" (Virginia Department of Education, n.d., p. 2). Students are tested in grades three – eleven in the four core subjects. A school's accreditation is based upon 70% of students passing these tests.

*Summary*

Public education faces what may be its greatest challenges to date. At one side of the issue, the federal government has mandated the presence of highly qualified teachers in every classroom and the penalties are high for school divisions with ineffective teachers. At the other side is a teacher exodus from the classroom and the attendant difficulty and expense of hiring and replacing qualified and effective teachers. Effective teacher preparation programs, whether alternative or traditional, have the potential to increase the pool of highly qualified teachers (HQT) who can help schools make AYP and close the achievement gap. Traditionally licensed teachers obtained their teaching certificate as part of their undergraduate or graduate degree programs, while alternatively certified teachers not only were full time employees but were also completing a year of coursework and successful classroom teaching. This research will attempt to determine the impact of these routes to certification on student outcomes in relation to statewide achievement tests.

## CHAPTER 2

### LITERATURE REVIEW

#### Introduction

This chapter examines accountability issues facing teachers and school divisions. It also provides the extant research on teacher shortages and the attributed aspects and causes, specifically teacher attrition, salaries, classroom management skills and workplace conditions. The cost to replace teachers also is explored. Literature is presented on the practices of school divisions and state departments of education tasked with identifying and recruiting effective teachers, including the impact of teacher preparation programs, licensure, and years of experience.

Traditional licensure programs (TLPs) have produced many qualified teachers but recent shortfalls in the recruitment and retention of qualified teachers have promoted the use of alternative certification programs (ACPs) as well (Feistritzer, 2007). The section on ACPs presents the current literature on the origination of ACPs, ACP participants, standards for ACPs, types of ACPs and comparative studies of ACPs and traditional routes to licensure (TLPs), including advantages and disadvantages.

#### *Era of Educational Accountability*

President George W. Bush signed No Child Left Behind (NCLB), also known as P.L. 107-110, into law on January 8, 2002. NCLB is now under scrutiny for reauthorization and continues to be a political debate on Capitol Hill. This debate about reauthorization has the potential to affect every American public school. Principals must continually improve their schools or they may lose their jobs. Teachers feel the pressure

of NCLB on at least two fronts: the mandate to attain highly qualified status in every area that they teach and the responsibility for ensuring that their students pass the statewide achievement tests (Yell, 2006). Because of this mandate, it is important now more than ever to hire effective and highly qualified teachers.

### *Hiring Effective, Highly Qualified Teachers*

With the shortage of teachers well documented (Luekens et al., 2004), the secondary aspects of the teacher shortage become evident. Simply placing a teacher at the head of a classroom does not ensure the kind of effective teaching required by federal mandates. The qualities that teachers bring to the classroom make a measurable difference in how well and how much students learn. Administrators need to take careful note of these factors when hiring teachers. By doing so, they may invest in their students' future achievement (Kaplan & Owings, 2002, p. 4).

Even though teacher shortages have been a nationwide concern for several years, every state can identify its own critical need areas (Bradley, 1999; U.S. Department of Education, 2007). The Virginia Department of Education (VDOE) has mounted a substantial and sustained response to the statewide shortage of teachers with specific endorsements to fill critical need areas (see Table 2). This effort is evidenced in the initiatives directed at career switchers (Career Switchers Alternative Route to Licensure), students enrolled in teacher preparation programs (Virginia Teacher Scholarship Loan Program), and the hiring of retired teachers and administrators. The VDOE has established an agreement with The New Teacher Project and created web based recruitment tools: Teach in Virginia and Teachers-Teachers.com. The VDOE also

provides tuition reimbursement directly to special educators on conditional licenses and other qualified personnel (Virginia Department Of Education, 2007).

Additionally, the VDOE has invested in partnerships with state colleges and universities. During the 2001 academic year, the Division of Teacher Education and Licensure and Office of Special Education and Student Support allocated more than \$2.5 million dollars to support approximately 1,700 educators seeking special education endorsements (Virginia Department of Education, 2003). However, partnerships with state colleges and universities will not solve all of the teaching shortages; therefore, other methods must be initiated to fulfill the shortages in other subject areas. Otherwise, the shortages will not be addressed and the students and schools may suffer.

Table 2

*Top Ten Critical Shortage Areas in Virginia*

---

1. Special Education
  2. Mathematics, 6-12 and Algebra I add on endorsement
  3. Career and Technical Education
  4. Elementary education, preK-6
  5. Foreign Language (Spanish, preK-12, French, preK-12)
  6. Middle School (6-8)
  7. Reading Specialist
  8. Earth Science
  9. History and Social Science
  10. English
- 

Note. From the Virginia Department of Education *Critical*

*Shortage Areas*. Retrieved March 1, 2007, from Virginia Department of Education Web Site:

[www.pen.k12.va.us/newvdoe/criticalshortage-areas2006-2007.pdf](http://www.pen.k12.va.us/newvdoe/criticalshortage-areas2006-2007.pdf).

The Virginia Department of Education has used bonus programs to fill vacant positions with highly qualified candidates who are likely to be successful teachers (Hanthorn, 2004). For example, the Virginia Middle School Teacher Corps (VMSTC) offered \$10,000 for up to 69 teachers willing to teach in a school that had been deemed as struggling in mathematics (due to the school not making SOL accreditation or making AYP in mathematics achievement). In Virginia, there are 40 school divisions with a total of 67 schools that meet the minimum requirements for a VMSTC teacher (Virginia

Department of Education, 2004). Because of this success, the Virginia Department continues to seek other ways to entice more prospective teachers via other programs.

### *Characteristics of Effective Teachers*

In 1983, the National Commission on Excellence in Education published *A Nation at Risk*, which began a major education movement to help tie government funding to public school assessment. The report sounded an alarm regarding the current educational system, stating,

The educational foundations of our country are presently being eroded by a rising tide of mediocrity that threatens our very future as a Nation and as a people...If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war (as cited in National Commission on Excellence in Education, 1983, p. 1).

The report called for a commitment to heightening the importance of education on the nation's agenda, strengthening graduation requirements, adopting measurable standards of educational performance, increasing time devoted to learning, and raising standards for teachers (National Commission on Excellence in Education).

Research has stated that the most important factor in student achievement is teacher effectiveness (Owings & Kaplan, 2003). Having highly qualified teachers with knowledge and background in their content areas and strong supervision from content leaders and administrators is critical to the success of their students (Garner, 2007). Other key components to being an effective teacher include having a mentor with whom the teacher can relate during the beginning years, rigorous training through college education classes, and professional development sessions (Education Commission of The

States, 2003). Ng (2003) reported that other key characteristics of effective teachers include: self-knowledge, acceptance, maintaining a good rapport, understanding of the community, empathy, being culturally aware, connecting to the curriculum, being able to motivate the student, coping with everyday problems in school, conducting a self-analysis and being able to survive in crisis situations.

With the focus on accountability, it is important to determine what types of teacher preparation programs are effective. Empirical research from Marzano, Marzano, and Pickering (2003) indicated nine instructional strategies that had a significant impact on student achievement. Those teachers that come into education or learn about these instructional strategies via professional development and integrate these have been reported to notice significant gains in their student's achievement. Taking these strategies and placing them in the hands of highly qualified teachers can close the disparity gap between gender and ethnics. Table 3 lists strategies in order of the largest percentile gain and when taught early in an educator's preliminary coursework, these strategies will allow an educator to become more confident in the way they deliver the material.

Table 3

*Instructional Strategies Affecting Student Achievement*

Strategy	Percentile Gain
Identifying similarities and differences	45
Summarizing and note taking	34
Reinforcing effort and providing recognition	29
Homework and practice	28
Nonlinguistic representations	27
Cooperative learning	27
Setting objectives and providing feedback	23
Generating and testing hypothesis	23
Questions, cues and advance organizers	22

Note: From Marzano, Pickering, and Pollock (2001).

*The Importance of Teacher Preparation*

Teacher preparation programs are linked directly to teacher effectiveness in the classroom. In fact, “high quality teachers can partially compensate for the home and educational deficits apparent in the preparation of disadvantaged students” (Owings et al., 2005 p. 15). The Education Commission of the States (2003) reviewed 92 studies to answer questions regarding teacher preparation. They found that effective teachers, especially in schools that are difficult to staff, had three variables in common: they were placed in urban schools by central office staff, had taken multicultural classes in their teacher preparation courses, and were carefully selected by their principals. According to



research, preparation is critical to the success of any job, but for educators, preparation is even more important (Owings et al.).

Darling-Hammond (2000) conducted a survey among fourth and eighth grade teachers in six states and she matched that data with their respective classes who took the National Assessment of Educational Progress tests. She concluded that the preparation and coursework that teachers undergo before they enter their classrooms strongly correlates with the reading and mathematics grades their students receive. Darling-Hammond (2000) stated, “This analysis suggests that policies adopted by states regarding teacher education, licensing, hiring and professional development may make an important difference in the qualifications and capacities that teachers bring to their work “ (p. 1). Hanushek (1992) stated that teachers have a significant impact on student achievement, and that when teachers with excellent credentials teach classes compared to teachers with poor and limited knowledge, the difference for the students can be as much as a whole grade level. Monk (1994) found a positive effect on student achievement when a science or math teacher taught a class related to his/her degree or endorsement area. Harrell, Van Tassell, and McKee (2004) stated, “If teachers are well-prepared, then they will have the experience needed to create a positive learning environment for students and become successful experienced teachers” (p. 6). Preparation also may have strong links to teacher retention (Ingersoll, 1999). Traditionally, teachers who are poorly prepared are more likely to leave the profession than the ones who are qualified (Ingersoll).

#### *Teacher Licensure and Years of Experience*

Wilder-Johnson (2004) studied the effects of teacher licensure, years of experience, school socioeconomic status and student gender on student achievement for Algebra I

and biology students and found that Algebra I teachers' experience had a significant effect on student achievement. Interestingly, as compared to other Algebra I teachers with more teaching years, those Algebra I teachers with fewer than five years teaching experience reported significantly higher scores on their students' Algebra I assessments. Conversely, biology teachers with teaching experience between 10 and 15 years showed significant gains as compared to others in the study. Nelson (2003) analyzed the impact of teaching experience on student achievement on the reading and writing portion of the Colorado State Assessment Program for third and fourth grade students and concluded that there was no significance and almost no correlation between student achievement and years of experience.

Another quality that experienced teachers possess is the ability to adjust to classroom conditions such as time, curriculum and class size. Seasoned teachers who are able to be flexible with their classes during instruction may have fewer problems and better academic scores. For example, O'Connor, Fish, and Yasik (2004) studied 35 experienced teachers and 35 novice teachers. They were examined to observe cohesion, communication, and flexibility in their teaching. Results indicated that a teacher's ability to be flexible helped students do better academically. Using the Classroom Systems Observation Scale (CSOS), teachers were rated based upon their level of flexibility (from *rigid* to *chaotic*), cohesion (*disengaged* to *enmeshed*) and communication during a 50-minute observation. The CSOS consisted of a 47-item list that measured specific traits related to the teacher's personality and rapport. Specific traits that were identified in the CSOS were tallied at the end of the observation where they were compiled and rated. Because the seasoned teachers had previous experiences to use as a basis of success, it

helped them adjust where their newer counterparts experienced more difficulties and were not as successful.

### *The Teacher Shortage*

The shortage of teachers in areas such as mathematics and social studies is a complex problem requiring a multi-faceted approach that places equal importance on the retention of experienced ones and the recruitment of new teachers. Ingersoll (2002) stated "...recruiting more teachers will not solve the teacher crisis if large numbers of such teachers then leave. The image that comes to mind is a bucket rapidly losing water because of holes in the bottom. Pouring more water into the bucket will not be the answer if the holes are not first patched" (p. 43). Feistritzer (1999) reported to the House Committee on Education and the Workforce Subcommittee on Postsecondary Education, Training and Life-Long Learning that in the first decade of the twenty-first century, public school divisions will need to hire more than 2.2 million teachers. Similarly, the National Education Agency (2008) also predicts that over 2 million teachers will be needed to replace teachers leaving the profession.

### *Teacher Attrition*

Teacher attrition has been the focus of research and concern since the 1990's. Ingersoll (2001) conducted a national study using the School and Staffing Survey and Teacher Follow-Up Survey with revealing results. Within three years, one-third of the teachers hired leave the profession and almost half leave after teaching for five years. Primary reasons for staff leaving their currently employed school division included either moving to other divisions where the salary was higher or leaving the profession altogether due to poor working conditions or the lack of support. To illustrate this

example a little more clearly on how teacher attritions affects localities and states, Stewart, the K12 Deputy Chancellor for Educator Quality, reported to the Florida Board of Governors that the teacher shortage in Florida was projected to reach 30,000 in 2006-2007 due to the number of teachers leaving the profession (Florida Department of Education, 2005).

One discipline where teacher attrition has been well documented is in special education. Singh and Billingsley (1996) conducted a survey of 658 special education teachers and concluded that working conditions were the most important element in remaining in the field. Role related problems and the day-to-day stress also had an impact on whether or not the teachers intended to stay. Russ, Chiang, Rylance, and Bongers (2001) interviewed 54 special education teachers inquiring why they were leaving teaching and found that 61% responded that the higher case loads and class sizes had influenced their decision to leave. Ax and Stephens (1998) randomly chose 237 former teachers of students with emotionally disturbance / behavioral disorders to investigate why special education teachers left the profession. Ninety-nine teachers, or 42% returned the survey. Fifty-nine percent of the teachers who returned the survey indicated that poor administrative support was the key decision to leave the profession. Other reasons noted included: 15% of the respondents were “burnt out,” 13% reported that student violence influenced them and 11% stated that excessive paperwork impacted their decisions to leave. The location where educators work can also play a factor in the teacher vacancies. For example, teacher attrition also plagues many rural areas. Thirty-six percent of rural teachers who teach special education are unqualified (do not meet the criteria for a state license) compared to the national average of 11% (Tyler, Cantou-

Clarke, Easterling, & Klepper, 2003). To help combat this issue, programs like the Alliance for Excellent Education assisted thirteen rural colleges and universities in obtaining funding from the federal government to help prospective special education teachers who came from culturally diverse backgrounds by initiating special education programs at their respective colleges and universities. The universities reported that because of the “seed money,” special education teacher preparation classes were filled that would otherwise have been cancelled due to low enrollment (Tyler et al., 2003).

Attrition of novice teachers also plays a role in the exodus. Neild, Useem, Travers, and Lesnick (2003) examined “the current status of teacher quality in School District of Philadelphia and what the city was doing to ensure that all classrooms had highly trained, motivated, and knowledgeable teachers ready to boost the achievement” for its 188,000 students (p. 1). This urban study focused on highly qualified (defined as having passed the Praxis tests and coursework pertaining to the subject matter in which they taught) teachers in the classroom in the 1998-1999 school year and teacher attrition before tenure had been achieved. Neild, Useem, Travers, and Lesnick reported that only one-third of teachers chose to stay after they received tenure. In this three-year study, the percentage of teachers highly qualified in Philadelphia began at 93.3%. Within three years, it had dropped to 88.5%. One part of this study also examined the percentage of minorities enrolled in the division. If the percent of minority students were 90% or higher at a particular school, the percentage of highly qualified teachers dropped to 86%. Meanwhile, the percentage of highly qualified teachers in a school that had fewer than 50% of minorities enrolled in the school where they taught was documented at 96% (Neild et al., 2003). Yeager (1998) wrote that 16% of novice teachers quit within the first

year they are on the job while almost one-half leave within the first five years due to a variety of reasons. Kwiatkowski's (1999) study indicated that 40 – 50% leave the profession after seven years. In fact, with the attrition of new-to-the field teachers, a generation gap of sorts has arisen. A study done by Johnson and Kardos (2005) indicated that over the past thirty-five years, the percentage of teachers with fewer than nine years of teaching experience has decreased from 57% to 38%, while the percent of teachers with more than 20 years of experience has risen from 18% to 38%. Brighton (1999) reported similar statistics that over the next six years, 60% of the teachers currently teaching in the nation would be eligible to retire. Retiring educators cite salary and benefits, retirement pay, student concerns, overall workplace conditions and support from colleagues as reasons for leaving (Harrell, Van Tassell, and McKee (2004); National Education Association, 2005).

Similar effects are being seen across the nation. Luekens, Lyter, Fox, and Chandler (2004) reported in the National Center for Education Statistics that 15% of public and private school teachers reported that they either transferred to another school, or chose to leave the profession altogether. Using a Teacher Follow-up Survey that was administered to 8,300 teachers over a two-year span, the authors received a 90% response rate indicating some consistent trends. Those teachers with less than ten years were more than likely to leave the profession than those educators with more experience. Teachers younger than the age of 30 were more likely to move than older teachers. Main reasons for leaving their current assignment included: getting a better teaching assignment (40%), lack of support from their principals (38%) and being unhappy with their workplace conditions (32%) (Luekens et al., 2004). Lastly, 29% of those surveyed stated that they

left because of retirement and 20% of those not eligible for retirement left to pursue another career which included better salary and benefits.

### *Teacher Salary*

Many educators have left the field due to poor pay and benefits. The salaries paid by school divisions to educators across the nation are smaller compared to those for persons working in the corporate world with the same level of education (American Federation of Teachers, 2007). According to Darling-Hammond, teachers earn about one-fourth less than someone else with the same type of degree (PBS Online, 2000). As a result, many good educators are leaving the profession because of the inability to provide for their families.

Table 4 lists the salary comparison between teaching and other professions.

Table 4

*Teacher Salary Versus Other Profession Salary*

Profession	2005 Salary
Attorney	\$100,852
Professor	\$97,648
Buyer	\$61,553
Engineer	\$80,122
Assistant Professor	\$51,249
Computer Systems Analyst	\$75,709
Accountant	\$54,053
Teacher	\$47,602

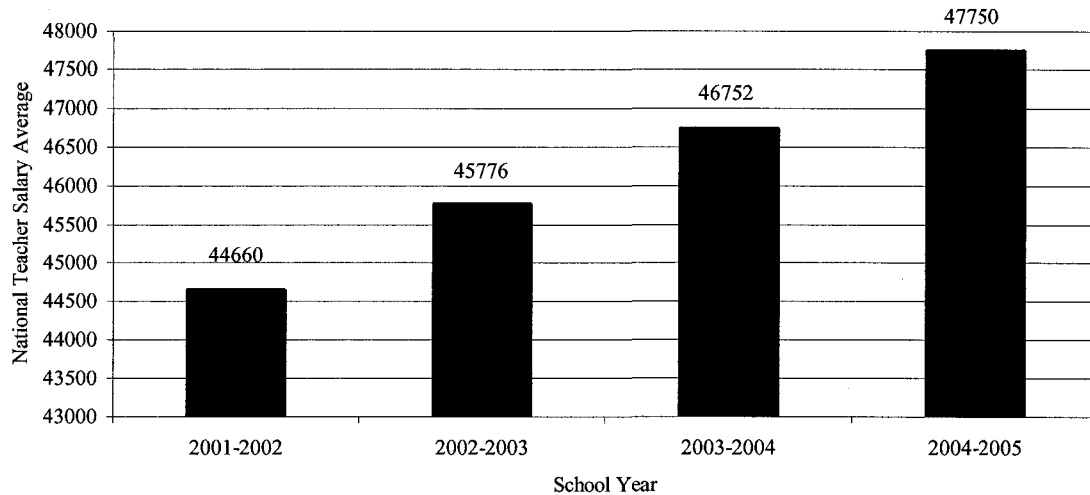
Note: From the American Federation of Teachers. Retrieved May 20, 2007, from American Federation of Teachers Web Site:

<http://www.aft.org/salary/2005/download/AFT2005SalarySurvey.pdf>.

Another dilemma in teacher salaries and benefits is that they can vary greatly from division to division within the same state, which may cause migration between divisions. For example, a teacher in division A and has taught for 10 years can make more than a teacher in division B who has taught for the same amount of time because the pay scale is different. Pay differentials also exist among divisions for additional degrees or hours toward degree. Additionally, some divisions may choose to pay signing bonuses or give teachers signing incentives like laptop computers. Figure 1 shows the national average of teacher salaries for the last four years.



*Figure 1. The National Average of Teacher Salaries*



Note: From the National Center for Alternative Certification. Retrieved

April 25, 2006, from National Center for Alternative Certification Web

Site: <http://teach-now.org/booktoc2006.html>.

The Education Trust-West (2005) conducted a study of California teacher salaries. They concluded that the difference in school operating funds between high and low socioeconomic schools in the same district in the top ten school districts in California could range from \$64,291 to \$522,459. This study implies that a teacher that remains in an affluent school division compared to an educator in a deprived school division could see a huge disparity of hundreds of thousands of dollars over the course of a career. For those educators wishing to remain in education, they may desire to leave their current divisions, especially if there is a nearby division paying a better salary. Therefore, the pool of applicants for nearby division's increases, allowing administrators to choose more highly qualified teachers. Ingersoll (2003) verified this notion and reported that teachers are attracted to and retained in divisions with higher pay and benefits.

One particular disparity noted is between the urban and rural school divisions. Reeves (2003) reports that teachers' salaries in urban and suburban areas are higher and urban school divisions often fill vacancies more quickly than rural divisions. More recently, Educational Research Service (2005) reported that suburban teachers earn approximately \$54,000 a year compared to rural teachers earning \$39,800 nationally. With these disparities, it is evident that teachers may migrate between divisions or even states if proximal.

### *Workplace Conditions*

Workplace conditions vary widely among schools and divisions and may also contribute to the teacher shortage. Darling-Hammond and Scian (1996) and Howard (2003) examined number of classes a teacher has to teach, availability of resources, perception of safety, and class size as workplace conditions that may impact teachers' ability to improve student achievement. If student achievement is not improved, then administrators may put additional pressure on those low performing teachers to their peers. As a result, these teachers feel that their principals do not support them thus creating a major workplace stressor for teachers (Luekens et al., 2004). Hoffman and Sable (2006) also argue that another factor that inhibits workplace conditions from improving is the average class size. Hoffman and Sable wrote that there are 48.5 million students in the United States with the most number of students living in California, New York, Texas, Florida and Illinois. Table 5 shows the highest student to teacher ratio in the United States.

Table 5

*States with the Largest Student to Teacher Ratios*

State	Student to Teacher Ratio
Arizona	21.1
California	21.1
Florida	17.9
Nevada	19.0
Oregon	20.6
Utah	22.4
National Average	15.9

Note. From Hoffman and Sable (2006).

Having large class sizes can create an increased number of tasks that a teacher has to do. For example, there will be more parental conferences and phone calls. Teachers will also have to vary their delivery in order to accommodate for the class sizes, and the assignment grading will require more time. These factors could drain a teacher of his or her energy and if teachers are going to be fully prepared, they will have to seek additional time outside of their contractual time.

In addition to teachers having large class sizes, additional workplace variables may also play significant roles as well. Darling-Hammond (2004) explained that quality teaching involves professional development, collegial interaction, and consistent leadership from the administration throughout the year. Marzano (2001) states that when teachers are able to improve on their content knowledge and delivery with instructional techniques from professional development seminars, the quality of learning will be

enhanced resulting in a decrease in classroom management issues. Results will show in a teacher being more pleased with the progress of their classes. However, this may not always be the case for every educator.

Perie and Baker's (1997) explored public school teachers' satisfaction with workplace conditions. Elementary and secondary teachers indicated that administrators did not support them (44% and 53% respectively) and also a majority of those surveyed indicated that collegiality did not exist in the building (41% and 48% respectively) amongst staff members. Regarding staff safety, 41% of elementary school teachers and 50% of secondary school teachers stated that a student had threatened to injure them. Thirty-three percent of elementary school teachers and 49% of secondary school teachers had been physically attacked.

### *Classroom Management*

When any public school employee is asked which workplace condition most impacts a teacher's decision to leave the field, he or she may cite student behavior. Historically, research has shown that achievement and attitudes of students are attributed to the classroom environment (Walberg, Fraser, & Welch, 1986) highlighting the need for effective classroom management instruction for teachers. Wayman, Foster, and Mantle-Bromley (2003) explain that classroom management and adapting instruction were two key components to successful teaching.

Students themselves may also play a role in a teacher's decision to stay or go. Harrell, Van Tassell, and McKee (2004) stated, "...for those individuals who teach in urban settings, there are additional factors at play. For example, many teachers are emotionally unprepared to deal with issues such as a lack of parental involvement, parent

drug or alcohol abuse, racial tension and students unprepared to learn. Poverty, poor health, and nutrition can be daunting factors for teachers who work with low-income students” (p. 49).

Successful teachers share certain characteristics that are effective in classroom management. Marzano, Marzano, and Pickering (2003) identified four classroom management techniques that were critical to the success of teachers. Specifically, mental set decreased disruptions by 40%; disciplinary procedures decreased disruptions by 32%; teacher-student relationships decreased disruptions by 31%; and rules and procedures accounted for a 28% decrease. Teachers who practice these common characteristics are often noted as successful educators and catch the eyes of their building administrators. Those administrators aware of the significance of classroom management and student academics are more likely to pay close attention to these factors in order to avoid teacher turnover and the cost of replacing teachers who have not had adequate classroom management training (Marzano, Marzano & Pickering).

As discussed, reasons for losing highly qualified teachers include: workplace conditions, noncompetitive salaries and benefits, classroom management, and unsupportive principals and colleagues. When schools lose teachers for any reason, the cost to recruit and retrain may be in the thousands of dollars yearly for school divisions. Therefore, hiring effective and well-prepared educators becomes a vital cost-effective measure for school divisions.

#### *The Cost to Replace Teachers*

School officials must not only be concerned with student achievement, they also must be concerned with hiring high quality teachers and high teacher turnover rates. If

teachers remain in the profession longer, the monies used to recruit and retain them might be spent in other places such as professional development and salaries. When they leave the profession, there is a considerable cost to recruit, hire, and retain new teachers.

Benner (2000) reported that the average amount of money to recruit and fill vacancies is \$11,000 in the state of Texas. Berry (2005) reported that school divisions spend 30% of a teacher's yearly salary, which is between \$12,500 and \$56,000 of the national average, to fill a vacancy. In Texas alone, this astronomical cost added up to \$300 million per year (Berry). Based upon those figures, it would take approximately \$2 billion to replace the 173,000 teachers who are leaving the profession and another \$3 billion to re-staff those positions for teachers who transferred to another school (Alliance for Excellent Education, 2005). If school divisions could slow the attrition rate, monies spent on recruitment and retention could be better spent on providing a higher quality education for the students they educate. The following section discusses types of certification programs used to fill teacher vacancies.

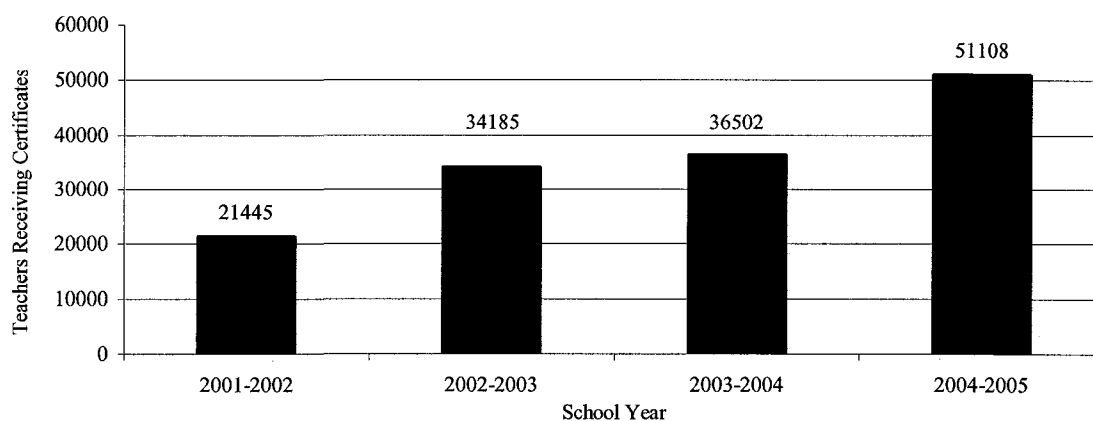
### *Alternative Certification Programs (ACP)*

#### *ACP Origination*

When teacher shortages became evident in the early 1990's, state departments of education began the process of brainstorming initiatives to solve this dilemma. At that point in time, 33 states had either proposed studies or had incorporated a version of the ACP that bypassed the four-year process of traditional licensure procedures (Schoon & Sandoval, 2000). By 1998, some 80,000 teachers had gone through some sort of ACP across 41 states. By the year 2003, there were ACPs in 46 states, including Washington D.C., and the opportunity to become certified in a quicker time frame was regarded as an

acceptable way to recruit and retain good teachers (Feistritzer, 1999; Feistritzer 2005a). In 2005, there were approximately 51,000 teachers who completed their requirements for licensure through ACPs, an increase from 36,500 in the previous year (National Center for Alternative Certification, 2006). Figure 2 shows the increase in the number of teachers who have received licenses to teach by alternative routes.

*Figure 2. Teachers Receiving Certificates through Alternative Certification Programs*



Note: From the National Center for Alternative Certification. Retrieved April 25, 2006, from National Center for Alternative Certification Web Site: <http://teach-now.org/booktoc2006.html>.

### *ACP Participants*

ACPs have made it possible for prospective teachers to join the education field at almost any point in their lives without going back to college for extensive periods of time. The typical ACP candidate is older, has worked in another profession, and has some ties to poverty-related areas (Darling-Hammond, Hudson, & Kirby, 1989; Feistritzer, 2005a). Seventy-two percent of those who pursued teaching licenses via

ACPs are at least 30 years old and nearly 90% possess a bachelor's degree or higher outside the field of education (Feistritzer, 2005a).

Prospective teachers may investigate ACPs for several reasons. Feistritzer's survey of alternative route teachers revealed valuable insight "into who they are, why they chose to teach, how they are transitioning into teaching... how long they plan to teach" (p. 3) as well as other characteristics. Results indicated that for 76% of ACP teachers, receiving a salary and benefits were considered to be very important to them while 73% stated that being able to teach while getting certified was most important to them. Other notable points such as the length of the program (57%) and the out of pocket costs (57%) were identified to be important to educators. Feistritzer (2005a) reported that 47% of ACP teachers would not have entered education if it were not for ACPs.

ACPs also can serve the important function of diversifying the teacher pool. Thirty-two percent of ACP applicants were minority compared to 11% of minorities currently in the teaching profession. Eighty-two percent of these minority teachers are recommending the program to others, and 62% plan to remain in education five years from now. Forty-three percent of those African Americans who have completed an ACP program and are teaching state they would have not become teachers if it were not for the ACP program that they went to obtain their licensure (Feistritzer, 2005a). The typical ACP teacher was between the ages of 18-29. Sixty-three percent of ACPs are female and 68% are Caucasian. Fifty-seven percent possess a bachelor's degree outside the field of education and 50% teach in a city that is populated with 250,000 people.



The interest in ACPs from the general population has been noteworthy. In New York, 2,300 people applied for an ACP that had only 250 positions available. In the next year, 7,800 New Yorkers applied for 1,500 slots in the same program. Similar results have been seen in Massachusetts and Texas (Community College Policy, 2005). Part of the nationwide interest in ACPs is the flexibility built in to help with the transition from an existing career. For example, the Texas Education Agency (TEA) required that colleges and universities modify programs, mandating a degree requirement in the field teachers are going to teach as well as pedagogy coursework completion and passing scores on the state exam. However, the TEA has also lowered the number of hours that a soon-to-be teacher shadows and observes and instead has replaced those requirements with completing workshops or trainings on weekends. Coursework hours in the major have been lowered from 48 hours to 24 hours (Harrell, Van Tassell, & McKee, 2004). This flexibility has now enabled prospective teachers to enter the teaching field more quickly compared to TLPs.

#### *Standards for ACPs*

Because there are typically several sources through which teachers can receive their ACP teaching licenses, operationally defining them with uniform standards is difficult. Since teacher licensure is regulated through state departments of education and because programs vary from university to university, criteria and standards for them vary widely (Owings et al. 2005). However, researchers have illustrated some common characteristics. Feistritzer (2005a) found that on average, ACP educators had 18 semester hours or less preparing them for teaching and that 68% were able to complete their programs within a two-year span. Feistritzer (1999) also reported that effective

ACPs have incorporated the following into their programs: rigorous coursework, early entry in the classroom, have a mentor assigned throughout the process, and be part of cohort participation in the program. While no uniform standards exist, researchers have theorized about what makes a quality ACP. Darling-Hammond and Sykes (2003) ventured that, “efforts that include a comprehensive program of education coursework and intensive mentoring have been found to produce more positive evaluations of candidate performance than models that forgo most of this coursework and supervised support” (p. 11).

#### *Types of ACP*

*Troops to Teachers (TTT).* Troops to Teachers are one of the ACPs studied in this research. Feistritzer (2005b) investigated the TTT program including demographic information, degrees earned and aspects of the program. Eighty-two percent of TTT participants are male, and 37% of those are minority. Nine out of 10 TTT teachers are at least 40 years of age. These teachers are employed by larger cities (55%), and medium cities (31%). Almost one-fourth of the teachers are certified in social studies (23%) while the percentage of those TTT teachers teaching mathematics is slightly higher (27%). Sixty-two percent of TTT teachers have master’s degrees or higher, and of those educators with master’s degrees, 32% have the degree in a field other than education, while 27% are in education. In regard to the program, 38% of TTT participants state that over 50 hours of college courses were taken for their licensure requirement.

Feistritzer (2005b) mailed a 38-question survey to 3,000 TTT-certified teachers randomly who had been teaching since 1994, of which forty-seven percent, or 1,431 TTT certified teachers, returned the survey. She investigated the perceived preparedness of

TTT participants and their intent to remain in education. The TTT participants reported they were competent in motivating students, managing time efficiently, and had good classroom management as well as organization. Seventy-eight percent of continued teaching after five years of service, reporting that they wanted to make a difference in students' educations. Feistritzer (2005b) found that 28% of TTT leave the teaching field either through retirement or employment outside the field of education (27%).

Similarly, Owings et al. (2005; 2006) completed a nationwide survey with TTT participants and their principals to determine if they were better prepared than TLP students. The instrument was generated from Marzano, Pickering and Pollock's (2001) *What Works in Schools: Translating Research Into Action* instructional strategies. The Program Completer and School Administrator Questionnaire were mailed to 875 building administrators and almost 1,300 TTT. Sixty-one percent or 793 participants returned the survey, which used a five point Likert scale for response. Eighty-two percent or (650 teachers) were male; 60% (476 teachers) were white; and 25% (199 teachers) were of Black or Non-Hispanic ethnicity. Ninety percent of the principals surveyed stated that the TTT teachers were better prepared than TLP completers with respect to classroom management and instruction. Furthermore, principals agreed (90%) that TTT teachers had an impact on student achievement controlling for years of teaching experience. Teachers prepared through the TTT program said they would remain in schools with high levels of economically disadvantaged students and reported that the preparation coursework helped them become more effective teachers.

*Career Switchers (CS)*

Career Switchers is the other ACP researched in this study. CS was the product of Virginia General Assembly's 1999 request for alternative ways to recruit prospective educators with work experience into the education field. From the summer of 2000 until November 2001, 583 people applied for 100 CS openings and priority was given to those who were eligible to teach in the critical shortage areas. Because of the success of this program, the regulations for Career Switchers became permanent on February 2002 (Virginia Department of Education, 2002). Currently, there are nine universities and school divisions throughout Virginia that have CS programs on site through funding from the Virginia Department of Education.

To be eligible for the program, prospective teachers must possess a minimum of a bachelor's degree and have worked full time for a minimum of five years. Applicants must have grade point averages 2.5 or higher in a content area and have passed the Praxis I or Virginia Communication and Literacy Assessment (VCLA) and the Praxis II in their endorsement areas. Endorsement areas available to CS include: middle school or high school mathematics, science, English, social studies, K-12 foreign language and K-12 English as a second language.

Once a student has been accepted into the program, two phases must be completed before the student can receive licensure. Phase I of the CS program consists of 150 hours with similar coursework to a TLP, such as foundations of education, human growth and development, planning and curriculum and instruction, technology and classroom management. In some programs, this coursework requirement can be completed over the course of a summer, which is a convenience compared to TLP requirements. Forty hours

must be spent in a classroom in the teachers' endorsement areas. Phase II requires applicants to secure positions as teachers and continue the professional development with 20 additional hours in a classroom setting observing other teachers. Phase II additionally requires that the student will be teaching for an entire year with a teaching contract. CS candidates receive full licensure when they have completed all necessary coursework, achieved passing scores on the respective Praxis I and II tests, and are recommended by their building principals (Shenandoah University, n.d; Virginia Community College Career Switchers Program, n.d.).

The CS program offers the following to its graduates: the skills necessary to teach in a critical area, necessary coursework provided in sixteen weeks, assigned mentors to guide candidates from admittance into the program to signing on as a full time teacher with a five year renewable license, a cohort program to ensure success of all candidates, supervised classroom experience, and tuition assistance all while the candidate maintains employment in their pre-teaching careers (Virginia Community College Career Switchers Program, n.d.).

#### *Studies Comparing Alternative Certified Programs and Traditional Licensure Programs*

Research regarding alternative certification programs, which has been available for the past decade, albeit scantily, has done little to resolve the debate regarding their effectiveness (Seftor & Mayer, 2003). Owings et al. (2005) noted, "although many ... alternative certified teachers are entering America's K-12 classrooms, of which one group includes Troops to Teachers, research does not yet clearly confirm that students are gaining as much or more from these teaching professionals as from traditionally prepared teachers" (p. 6).

Adams (1996) observed 2,327 elementary school teachers in one school division and was able to draw conclusions through a Cox regression model of teachers who obtained their licensure via traditional programs from August 1985 through November 1991. Adams analyzed key variables to determine key attributes teachers needed to be successful and remain in the profession. These variables were identified as age, sex, race, certification route and level of education. Adams concluded that TLP teachers were more likely to leave the field of education than the teachers who went through ACPs. The study accounted for approximately 10% of the variation teachers continuing their occupations. Johnson, Birkeland, and Peske (2005) examined 11 ACPs in California, Louisiana, Connecticut, and Massachusetts with the intent to determine how the states' ACPs were operated and whether they were working effectively. Researchers gave the following recommendations: to consider the centralized versus decentralized approach, to align goals and design of the programs, and to consider not lowering funding while increasing expectations. Johnson, Birkeland and Peske (2005) also reported that the participants felt that the program adequately prepared them.

A critical comparative feature of certification route would be effect on student achievement scores. Unfortunately, this type of data is rare. For example, Miller, McKenna and McKenna (1998) observed those teachers who progressed through ACPs and those who pursued TLPs. This study analyzed 41 ACP and TLP teachers from self-contained fifth and sixth grade classrooms. Eighteen classrooms were utilized and students completed a pre and posttest. ACP teachers taught 188 students while TLP teachers taught 157 students. Using a MANOVA, it was determined that there were no

significant differences between the groups in their students' Iowa Math and Reading Tests of Basic Skills scores:  $F(1,158) = .99, p = .83$ .

Goebel (1986) studied one of the first ACPs in the Houston Independent School District. The program consisted of pre-teaching prerequisites similar to a TLP, a yearlong internship and the award of licensure at the end. It was reported to the Texas Education Agency from this program that administrators surveyed believed that there was no significant difference between alternative certified teachers and first year teachers with respect to preparation and student achievement scores.

Conversely, Laczko-Kerr and Berliner (2002) found a significant difference between traditionally certified and nontraditionally certified teachers. With a sample size of 293 "under certified and certified teachers" representing five low-income areas, they were able to match 109 pairs of ACPs and TLP teachers. Laczko-Kerr and Berliner came to two conclusions. The first was that Teach for America educators were comparable to their under-certified counterparts. Furthermore, students taught by certified teachers scored 20% higher than under-certified teachers in mathematics, language arts and reading.

The Education Commission of the States (2003) reviewed 92 studies on topics such as alternative certification teachers compared to traditionally licensed teachers and reported "limited support" for the claim that ACPs produce teachers who are as effective as TLPs. Further, the commission concluded that ACP teachers may even begin their education careers experiencing additional hardships than teachers who went through TLPs. The commission made several recommendations including: a strong relationship between the cooperating school districts and colleges, rigid structure in the selection

process, constant and effective supervision from college programs supporting their student teachers, an understanding of the curriculum emphasizes basics such as the classroom and teaching, and as much training and coursework possible prior to the teacher entering the classroom for the first time.

Rosenberg and Sindelar (2001) conducted an extensive literature review of research on ACPs that emphasized on the preparation of special education teachers. Their results indicated that the studies found little data on effectiveness, but available results appear to be favorable.

The building administrators who handle teacher shortages and effectiveness issues on a daily basis can also provide valuable information teacher preparation. For example, a survey of principals concluded that TLP educators were much better prepared as teachers than ACPs, and that they were more effective in their jobs. Participants felt that while TLP had the educational foundation, the ACP program emphasized more content-based courses. (Jelmberg, 1996).

Clearly, more research on the efficacy of ACPs must be completed, including the effect of mentor support and program length. ACP advantages and disadvantages are explored in the following section.

#### *Advantages and Disadvantages of Alternative Certification Programs*

ACPs provide a route to teaching that is typically shorter and more direct, focused on licensure coursework, although often with less classroom practice (Virginia Troops To Teachers). As noted previously, ACP participants are often career switchers who choose to enter teaching through a route that accommodates their schedules and obligations. TLPs have more unrelated coursework and student teaching requirements built into the



degree (Johnson, Birkeland, & Peske, 2005). As with any program, there are advantages and disadvantages. The Center on Personnel Studies in Special Education (2004) has noted that ACPs and TLPs pursuing licensure in special education differ in length with ACPs being shorter and immediate classroom entry upon completion. Also, ACPs utilize on-the-job experiences and are able to recruit teachers from diverse and ethnic backgrounds. TLPs report 87% Caucasian and 13% minority teachers compared to ACPs at 79% White and 21% minority (Center on Personnel Studies in Special Education, 2004).

The shortened and compressed aspects of the ACP programs are also the source for reported disadvantages. Darling-Hammond (1997) reported while, in general, teachers are more prepared and are more successful in the classroom than before, ACPs may not effectively address critical issues such as classroom management, curriculum, learning styles and pedagogy. Berry (2001) concluded that alternative certified teachers were not prepared to tackle the job of teaching, reporting that they must know more than just the subject they were teaching their students if they were going to be effective. Problems were noted in classroom management, curriculum issues, lesson delivery and instruction, including the ability to teach critical thinking skills. Berry (2001) proposed that if ACP teachers were going to be successful, there needed to be an intensive focus on foundation skills such as pedagogy. Next, ACP teachers should have the opportunity of a field experience like a student-teaching opportunity. Lastly, all prospective teachers must meet or exceed their respective state's requirements for content and quality standards. When these expectations are fulfilled, then the success of ACP teachers will be greatly enhanced.

Many midcareer recruits lack the wide range of knowledge and skills that research has identified as necessary for effective teaching: understanding subject matter in ways that allow them to organize it and make it accessible to students; understanding how students think and behave, what they find interesting, what they already know, and how to motivate them; recognizing student differences that may arise from culture, language, family background, and prior schooling; and adapting lessons on the basis of that understanding (Berry, 2001, p. 34).

The issue of accreditation also may present a disadvantage for ACPs. TLPs may hold national accreditation such as the National Council for the Accreditation of Teacher Education (NCATE) while ACPs may not have such requirements (Center on Personnel Studies in Special Education, 2004).

The advantages of ACPs are also notable. ACPs reduce the coursework required for completion and those reductions may “tend to attract individuals with majors in subjects other than education; they also attract other people, more men, and more people of color than traditional programs” (Howard, 2003, p. 158). ACPs provide opportunities that enable their participants to keep their jobs until they can be employed as teachers. Some programs allow prospective teachers to complete their coursework over weekend classes, which would enable an ACP candidate to become fully licensed in less time while saving money on tuition (Virginia Department of Education, 2002). Therefore, ACPs can address the federal mandate to diversify the pool of teachers, both in ethnicity and content area expertise.

### *Summary*

The literature confirms the difficulty faced by school divisions in their attempts to hire effective teachers. At the same time, teachers are leaving the profession in record numbers, citing a variety of problems prevalent in the profession. For all of these reasons, teacher preparation programs have come under scrutiny for their ability to rapidly produce the kind of highly effective teachers who can meet the considerable demands of their profession. Alternative certification programs can rapidly produce teachers, but research has not clearly demonstrated their effectiveness regarding student achievement. This study will attempt to contribute to the body of research on the topic.

## CHAPTER 3

### METHODOLOGY AND PROCEDURES

#### Introduction

Many school divisions in Virginia are finding it difficult to hire qualified and effective teachers (Virginia Department of Education, 2007). To further complicate matters, AYP benchmarks are moving toward final goals of 100% proficiency for all students. To compound problems, teachers are leaving the profession due to retirement, lagging salaries, workplace conditions and the overall behavior of students. As educators leave the profession, human resource personnel and principals are finding it more difficult to fill shortages. With this mandate looming and considering teacher shortages, it is important to determine if there are advantages to any given route to certification.

As such, this study holds importance for key stakeholders such as human resource personnel, principals, and college professors who teach in traditional licensure programs (TLPs) and play roles in recruiting, selecting, and training teachers. Prior research with respect to TLPs and alternative certification programs (ACPs) has yielded mixed results regarding teacher effectiveness (Johnson, Birkeland, & Peske, 2005; Laczko-Kerr & Berliner, 2002; Owings et al., 2005). Additionally, with the main body of extant research regarding ACPs and TLPs being of qualitative design, quantitative evidence as to their comparative efficacy is scarce. This study will explore distinctions in the programs under review with respect to student outcome, and will contribute quantitative research to the teacher preparation literature on this topic.

### *Overview*

This chapter will identify the components of the study. First, demographic information will be provided for the participants. Second, the materials section will provide the reader with information on the reliability and validity of the surveys created for this research. Third, the procedure will give provide a description of the progression of the study from the pilot study to the final version including both divisions. Fourth, the research design is identified along with the variables used and how the data will be analyzed.

#### *School Division Demographics and Participant Information*

There were approximately 54,646 students enrolled in grades 6-12 in the two participating school divisions, but this study concentrated on those students eligible to take the SOL tests, reducing the sample size to 29,839. There were 15,218 female students and 14,621 male students in 25 middle and high schools within the two school divisions. Table 6 gives more details of school division A and school division B such as the number of schools accredited, graduation rates and advanced placement information.

Table 6

*School Division Comparisons*

	School Division A	School Division B
Number of schools fully accredited	27 out of 34	34 out of 39
Number of Middle Schools "Fully Accredited"	4 out of 6	4 out of 8
Number of High Schools "Fully Accredited"	4 out of 4	5 out of 5
Graduation Rate	77%	81%
Percent of Graduates Receiving an Advanced Diploma	32.7%	39.3%
Percent of Graduates Receiving a Standard Diploma	53.2%	52.2%

Note: From the Virginia Department of Education. *School, School Division and State Report Cards*. Retrieved 12/2/2007, from the Virginia Department of Education

WebSite:

<https://p1pe.doe.virginia.gov/reportcard/report.do?division=112&schoolName=All> and

the Virginia Department of Education. *School, School Division and State Report Cards*.

Retrieved 12/2/2007, from the Virginia Department of Education WebSite:

<https://p1pe.doe.virginia.gov/reportcard/report.do?division=117&schoolName=All>.

Tables 7 and 8 illustrate the general enrollment for students in the participating divisions. The two school divisions used in the study are in the southeastern part of Virginia. The cooperating divisions have given consent to participate in the study; however, it has been requested that the researcher not use the actual names of the divisions.

Table 7

*Fall Membership through September 30, 2005 of Participating Divisions*

	School	School	Totals
Grade level	Division A	Division B	
Grades 6 – 8	5,543	7,391	12,934
Grades 9 – 12	7,180	9,775	16,955
Totals	12,723	17,116	29,839

Note: From the Virginia Department of Education. *School, School Division and State Report Cards*. Retrieved 12/2/2007, from the Virginia Department of Education WebSite:

<https://p1pe.doe.virginia.gov/reportcard/report.do?division=112&schoolName=All> and

the Virginia Department of Education. *School, School Division and State Report Cards*.

Retrieved 12/2/2007, from the Virginia Department of Education WebSite:

<https://p1pe.doe.virginia.gov/reportcard/report.do?division=117&schoolName=All>.

Table 8 provides the reader an insight as to how similar both school divisions are in terms of ethnicity. The majority of students in both school divisions are African American. The second largest ethnic group is Caucasian.

Table 8

*Demographic Information of Students Enrolled in Participating Divisions*

School Division	Ethnicity					
	African American	Caucasian	His- panic	Asian / Pacific Islander	Native American	Undetermined
A	62.2	32.6	2.9	2.0	0.3	0
B	57.4	32.8	5.5	2.6	0.6	1.0

Note: From the Virginia Department of Education. *School, School Division and State Report Cards*. Retrieved 12/2/2007, from the Virginia Department of Education

WebSite:

<https://p1pe.doe.virginia.gov/reportcard/report.do?division=112&schoolName=All> and the Virginia Department of Education. *School, School Division and State Report Cards*.

Retrieved 12/2/2007, from the Virginia Department of Education WebSite:

<https://p1pe.doe.virginia.gov/reportcard/report.do?division=117&schoolName=All>.

Within the divisions, 294 social studies teachers were asked to complete the *Teacher Demographic Survey*, a 17-question survey (See Appendix A.), conducted through Inquisite, an online survey system. No elementary schools were used in this study since the Career Switchers program only endorses social studies teachers in the middle and high schools. Table 9 illustrates the response rate from the pilot study and the two divisions.



Table 9

*Response Rate From Teachers in Participating School Divisions*

	Pilot	School	School	Total for Both
	Study	Division A	Division B	School Divisions
Number of teachers responding after initial request	11	56	41	97
Number of teachers responding after follow up request	17	39	42	81
Total Responses	28	95	83	178
Total Number of Social Studies Teachers	34	139	155	294
Response Rate	82.3%	68.3%	53.5%	60.5%

Prior to matching SOL data with teacher surveys, the TLP group contained 149 teachers and the CS group contained 18 teachers, with only 11 TTT from participating school districts. Eight of the 11 TTT retired from military service while only five reported that they received a stipend to pursuing teaching as a second career. Ninety-two teachers were teaching at the middle school level while 87 were teaching at the high school level in 2006. Ninety-four teachers (53%) who participated in the study had bachelor's degrees while 74 (42%) possessed master's degrees. Only 16 teachers had another endorsement other than social studies and 29 teachers also taught special

education. All teachers emailed in the division were endorsed in social studies or eligible for an endorsement.

Since there were 40 first year teachers or teachers that did not teach a SOL tested course in 2006 that completed the survey, these 40 were excluded from the study. After collating the demographic data of the remaining eligible participants in the study, the researcher matched the teacher to their respective class's SOL average. Noticing that several teachers taught more than one SOL tested course, the researcher created a separate line item for every SOL course the teachers taught in 2005-2006. Teachers who taught more than one SOL subject increased the sample size. For example, 11 TTT responded to the survey and after matching the data to the teachers, the total number of SOL courses taught by TTT increased to fifteen. With these low numbers of CS and TTT, it is a limitation of this study, which will be discussed in chapter 4.

There were also cases where there were no SOL scores to match to a teacher's name. As a result, that teacher's data and response were dropped. However, if a teacher responded to the survey and did not have a tested SOL course, the researcher excluded their qualitative data such as number of hours spent observing. For example, in the case of CS, three of the 18 teachers either did not teach a SOL course or were first year teachers. As a result, the actual number of SOL scores recorded with a CS teacher was reduced to fifteen participants. The largest group, TLP, had 149 teachers respond, but this number of SOL courses decreased to 135 due to the number of first year teachers and the number of government and psychology teachers. Table 10 depicts the number of TLPs, CS and TTT from both divisions from which the researcher was able to match their class 2006 SOL test score averages.

Table 10

*The Number of TLP, CS and TTT that Participated in the Study with  
2006 SOL Test Scores*

	Pilot	School Division	School Division	Total for Both School
	Study	A	B	Divisions
TLP	27	71	64	135
CS	0	9	6	15
TTT	1	7	8	15

Demographic information from those remaining in the study was obtained by use of the survey and compiled in Table 11. The TTT average age was the highest with 45 years and 8 months while the TLP average age was 37 years and 7 months. The overall average age from the respondents was 38 years and 7 months. The TLP group had the longest number of years teaching while the CS group had the shortest amount of time teaching. The number of years teaching was identified as 0 – 3 years, 4 – 6 years, and longer than six years because the research states that by year five over half of teachers in the profession leave the teaching field (Neild, Useem, Travers, & Lesnick, 2003). The 0 – 3 year range was chosen because in Virginia, continuing contract status (sometimes called tenure) is reached at the end of the third teaching year in the same school division. Furthermore, after three years, teachers who have fulfilled their licensure requirements are eligible for continuing contract status in Virginia.

The researcher did not ask demographic questions such as their sex, and ethnicity in an effort to keep the questions focused on the route certification and student

achievement. In addition, the researcher did not ask questions such as why the teachers pursued education and how long did they plan to remain in education.

Table 11

*Demographic Information Regarding the Participants*

	TLP Average	CS Average	TTT Average	Overall Average
Age	37 years	41 years	45 years	38 years
	7 months	2 months	8 months	7 months
Number of Years Teaching	Longer than 6 years (60%)	Between 0 and 3 years (50%)	Between 0 and 3 years (55%)	Longer than six years (45%)

*Materials*

*Teacher Demographic Survey*

A 17-question survey (Appendix A) was posted on a website for teachers to access through Inquisite, a web-based survey program. Teachers from both participating divisions received an email regarding the study and instructions were provided on how to access the survey. In the survey, teachers provided background information such as the number of years they have taught, their current school assignment, the route to licensure they pursued, and the highest degree they completed. Other questions included what type of degree was completed, if there were any other endorsements other than social studies, and how many hours of teacher observations or student teaching they completed prior to their first job as a teacher. Finally, their name was requested from which the researcher compiled this data with their respective SOL raw scale score class averages. Completed surveys were automatically compiled in the statistical analysis program, Statistical

Package for the Social Sciences (SPSS). Those teachers who completed the on-line survey had their names placed in a drawing for a chance to win an Ipod, a DVD player or a \$10 gift certificate to a local mall. The survey data was matched with the teacher SOL raw scale score average that enabled the researcher to obtain the data needed to determine if there was any significant difference between the respective routes of certification controlling for the number of years taught and their ages.

*Virginia Standards of Learning Social Studies Test*

As stated on the VDOE website, the purpose of the Standards Of Learning (SOL) is to hold teachers and schools accountable for teaching the SOL curriculum. Schools are held accountable through the yearly tests taken in January and May in an effort to assess student learning. Schools that make 70% or higher on all core subjects are noted as *fully accredited*. However, schools that achieve less than 70% in one or more core subjects are listed as *accredited with warning*. Because the Virginia Department of Education wants all schools to become or remain fully accredited, the SOL reporting categories and pass rates gives local school divisions valuable data for curriculum leaders, principals and teachers such as the pass rate, reporting category statistics. This information becomes a valuable tool in planning remediation for future tests. This data is accessible to those working within the school division.

The availability of the data enabled the researcher to collect the SOL raw scale scores for every social studies teacher that administered the test. The raw average scale scores were compiled with the results of the Teacher Demographic Survey for analysis into a SPSS spreadsheet. As the researcher analyzed the data, he noticed that there was several teachers in both school divisions that taught more than one SOL tested course.

When this occurred, the researcher copied the demographic data again on a separate line item, but changed the raw scale score to indicate another course that was taught. For example, if a teacher taught three SOL tested courses, the researcher added two more line items with the respective class average where statistical analysis was conducted with SPSS.

*SOL Social Studies Test: reliability and validity.* As with any instrument that determines achievement and to support the aims of this research, it is essential that the SOL tests be proven to be valid and reliable. The Technical Advisory Committee (TAC) originated in 1999 and met several times in 2000 and 2001 to review the content and construct of the SOL Tests to ensure that the SOL tests that were administered were fair and accurate based upon the state's curriculum. The TAC also was to report on any areas where additional work was needed. The TAC could include discussions such as the administration of testing, the content of the curriculum in addition to the actual SOL test itself. The TAC members included teachers and administrators in public education, state college and university professors, Virginia Department of Education officials and Prentice Hall representatives and these members met to discuss the curriculum framework, the blueprints and the creation of future test questions that were to be used in the focus courses. Once the questions were created, they were integrated into the current test as field questions. These field questions were analyzed at the state level for validity and reliability. If the field questions were determined to be valid and reliable then they were administered on future tests (Virginia Department of Education). The tests were analyzed again in 2003 and in 2004 with some changes. For example, when social studies, mathematics and language arts was expanded to include grades 4, 6 and 7,

curriculums had to be adjusted to reflect these changes. As a result, the tests changed as well. A perfect example is with 8<sup>th</sup> grade social studies. Prior to 2006, the SOL test included US History I to 1877, US History II – 1877 to the present and Civics and Economics. With the implementation of the 6<sup>th</sup> and 7<sup>th</sup> grade tests, the new 8<sup>th</sup> grade social studies tests covered civics and economics only.

Validity was determined to be appropriate according to the TAC. First, content validity supported “ample evidence” that the content of the test questions match the material taught in the curriculum is adequate. Content domain validity also was addressed, and TAC believed that there is more than enough evidence to support the SOL test. The report stated that the “current assessments are more than adequate” (Virginia Department of Education, 2003, p. 3). Second, SOL construct validity was demonstrated through correlation to other tests such as Stanford 9 Tests. The correlation range for the SOL tests and other standardized tests was noted in the .50 to .80 range (Virginia Department of Education, 2003).

Reliability was established using the Kuder-Richardson Formula 20 (KR-20) for every multiple choice grade level test and subject. It is reported that most of the SOL tests are within the .85 to .92 range. The pass proficiency or not passing reliability rating was also calculated using KR-20 with scores between .87 and .93 (Virginia Department of Education). These ranges indicate that the quality and the training for those scoring the tests are sufficient. Overall, the tests either meet or exceed the reliability standards, which one would indicate that the tests would be a good predictor of student knowledge, which reflects on the tests. Unfortunately, the report does not break down actual validity and reliability by a specific test. As a result, particulars were not given.

Once the TAC reviewed the documentation, they have concluded that “there is evidence that the educational assessments are being developed in a professionally responsibly way; there is evidence of content and construct validity; both score and decision consistency are high and performance standards were set in a defensible way (Virginia Department of Education, 2003, p. 3).

### *Procedure*

#### *Pilot Study*

In the spring and fall of 2007, permission was granted from the participating divisions before initiating the study. All social studies teachers from their respective divisions were asked to complete the *Teacher Demographic Survey* through Inquisite. The initial information (such as teacher name, school, and SOL raw scale scores for teachers) was obtained from the accountability departments and the social studies curriculum leaders for each division. Only the researcher had access to this data and confidentiality followed so the teachers could not be identified.

Prior to sending out the cover letter to the pilot group, the researcher uploaded the survey and submitted dummy data to determine if there were any potential problems and correct them if needed. Once the survey was correctly uploaded, a group email was generated and sent out to the pilot study group. The pilot study group encompassed one middle and high school in one of the divisions from the study. There were a total of thirty-four teachers from both schools and the schools were selected randomly. In the email, teachers received a cover letter containing the website address of the survey (Appendix A). By submitting the survey, the teachers agreed to participate in the study. Only the teachers that submitted a completed survey were matched with their respective



SOL scores. The teachers who were selected in the pilot study had two weeks to complete the survey. A follow up email was sent to improve the response rate at the end of the first week due to the fifty percent response rate not being met. At the end of the two weeks and the pilot study group submitted their results, the researcher then compiled the survey into a SPSS document and combined their answers with their respective SOL tests raw average score. The researcher reviewed the survey again to verify that there were no flaws in the instrument such as double barrel questions, and problems logging onto the survey, before initiating the study to both divisions.

#### *Expansion of Study*

After the pilot study group completed their surveys, the researcher then emailed all 2006 social studies teachers in school division A. Those who taught in school division B were emailed the survey in the spring 2007. Group emails were constructed to send out the cover letter and website address. After the three-week window had expired, the responses from the survey were formatted into a SPSS document where it was matched with the teacher's SOL scores. School division B participated in the study in the fall of 2007 once permission was granted to the researcher. Because permission was granted at two different times, the researcher provided teachers in school division B the same three week window to complete the survey and an additional week was also granted to increase the response rate.

School division A began social studies content specific course testing in the spring 2006 and school division B began social studies content specific courses in the 2007 year, the researcher had to identify that this could be considered a possible threat to the study. The analysis was conducted and reported in the next chapter.

### *Design*

The design of this study is a non-experimental one-way Analysis of Covariance (ANCOVA). The 2006 SOL Social Studies Test scores were used to examine the impact of teachers' routes to licensure while controlling for years taught and the teacher's age. The assumptions prior to running the ANCOVA will be discussed in chapter 4 before the results.

### *Variables*

The dependent variable was the 2006 SOL Social Studies Scores while there was one independent variable with three levels, the route of teacher licensure: CS, TTT or TLP. Teacher age and years of teaching experience were the covariates.

### *Data analysis*

As mentioned previously, this study was non-experimental and quantitative in nature. Independent variable data collected was categorical since it consisted of teachers identified in groups while the dependent variable was interval data. Covariate data (number of years taught and the teacher's age) were ratio data. Prior to running the ANOCOVA, several assumptions, such as homogeneity of variance, homogeneity of regression, homogeneity of slopes and the skewness of the dependent variable were verified. A one-way ANCOVA analyzed the data to determine if there is significance between the three teaching groups. The alpha value was set to .05 confidence level during the analysis. The type of sampling that was used in the study was stratified random sampling, specifically, non-proportional. This increased the likelihood of representativeness and ensured that key characteristics were included in the same proportion. The Teacher Demographic Survey also gave some qualitative statistics based

upon the submitted data, which was shared earlier in this chapter and portions will be presented in the next chapter.

### *Summary*

School accreditation is at stake in the accountability era in America. Principals and human resource personnel are making extensive attempts to secure and retain quality educators, often using teachers who have attained licensure through an alternative route (Feistritzer, 2005a). Research in this area is scarce and stakes are high for school divisions and principals (Owings et al., (2005)). This study investigated differences in student achievement related to the route teachers use to obtain their licensure.

## CHAPTER 4

### RESULTS

#### Introduction

Chapter 4 provides the analysis of the data on student outcomes and teacher licensure and a summary. The summary of the findings, conclusions of the study, limitations and recommendations for further study are presented in Chapter 5.

This study was designed to determine if there were any significant differences between the three routes to obtain teaching licensure: traditional licensure programs (TLP), Career Switchers (CS) and Troops to Teachers (TTT) on student achievement. Age and years of teaching experience were controlled for in the study. To measure student achievement, 2006 Virginia Standards of Learning (SOL) Social Studies Test raw scale scores were collected and matched to respondent teachers.

Student SOL scores were compared with the responses of teachers who completed the *Teacher Demographic Survey* (Appendix A). This survey was completed online at the teachers' convenience and once the teacher completed the survey, they were eligible to win an Ipod, a DVD player or a \$10 gift certificate through a drawing of participants' names. The survey was emailed to 294 social studies teachers in two school divisions in Virginia. Of the 294 surveys that were emailed, 212 teachers logged onto the online survey; however, 34 of them did not complete the survey. As a result, 178 completed the survey, yielding a response rate of 60.5%. When attrition was taken into consideration, the final sample included 165 teachers.

Table 12 lists the number of hours spent observing or student teaching in the classroom. The TLP teachers indicated that they spent on average of greater than one hundred fifty hours. The CS and TTT were in the classroom less than fifty hours. Here this question was broken down into fifty hours because some ACPs require a minimum of 150 hours with coursework and observations.

Table 12

*Hours in the Classroom as an Observer or Student Teacher*

	TLP	CS	TTT
	Average	Average	Average
Less than fifty hours	14%	75%	36%
Between Fifty and One-Hundred Hours	16%	6%	18%
Between One-Hundred and One-Hundred Fifty Hours	10%	13%	0%
Greater than One-Hundred Fifty Hours	39%	0%	9%

The researcher then analyzed the variances in each group to determine whether the variances in each group were equal given the differences in sample sizes in the groups. Levene's test was not significant,  $p = .71$ , enabling the researcher to use the entire sample in the ANCOVA.

The researcher verified all assumptions of ANCOVA prior to conducting the analysis. First, as previously reported, the variances in each group were equal as determined by Levene's test. The skewness of the sample was  $-.59$  indicating that the dependent variable was not normally distributed. The researcher then attempted to improve the normal distribution of the dependent variable by taking the square root and

logging it, but the researcher was not able to reduce the skewness. The homogeneity of regression was not significant,  $F(1, 32) = 2.53$ ,  $p = .12$ , indicating that there was no interaction between the covariate and the dependent variable. Last, the homogeneity-of-slopes assumption was tested. This test verifies that differences of the SOL scores among the three types of licensure routes vary as a function of the age and number of years teaching. The interaction was also not significant.

Table 13 catalogs the mean average of the SOL scores by group. The TTT group had the lowest mean with a 439.55 average while the TLP had the highest mean 449.52. The means presented here are a total and not broken down by content whether is by grade level or course.

Table 13

*Mean Average of SOL Scores by Group*

	Licensure Route		
	TTT	CS	TLP
Average Scale Score	439.55	460.31	449.52
Standard Deviation	46.33	42.32	40.18
Skewness	-.210	.195	-.743
Range	190.28	157.44	208.75

*Reducing Threats to the Study*

To help increase the confidence of the results of this study, there were several internal and external threats that were considered before the analysis.

### *Internal Threats*

To reduce the possibility of subject characteristics threat, the researcher found two school divisions with similar demographics. Both school divisions have approximately one-half of the student population receiving free or reduced lunch and are geographically located next to one another. The study centered on social studies teachers who taught grades 6 – 8 and high school end of course classes. These teachers taught from the same state curriculum framework as their relevant counterparts in the other division. Students were assessed with the respective SOL tests for the appropriate course and grade level once the material had been taught. There were some minor differences noted such as the place where a particular topic was taught during the course of the year.

With regard to the instrumentation threat to the study, teachers in both divisions received the same letter of interest, were given the same opportunity to participate and the same on-line survey during their respective three-week window. There were no changes to the instrument or time given to complete the study. Since the data collection was conducted via Inquisite, a web survey tool, the researcher downloaded the data from the server and compiled it with the teacher's SOL score. There was no direct contact between the researcher and the participant other than the email inviting the teacher to participate and the follow up letter if he or she had not responded to the initial invitation. The maturation threat with respect to age and the number of years taught were the covariates of the study. Since the researcher did not have access to the students' prior SOL scores or academics, the number of years taught and the teacher's age were the only covariates that did help tighten the study. Having this additional data could have solidified the power in which there was a determination between the three groups.

### *External threats*

This study was generalized to the secondary social studies curriculum. In addition, both school divisions had approximately 50% of students who were African American while 45% were Caucasian. The graduation percent differed between the two school divisions by 4% and the number of graduates receiving an advanced diploma also differed by 2%. Also, approximately one-half of the student population was receiving free or reduced lunch and were geographically located next to one another. Eight out of the ten secondary schools in division A were accredited while division B had nine out of thirteen. These similar demographics help identify that the SOL testing results in social studies from both divisions are very similar.

Another external threat to this study was that it was limited to only three groups of alternative licensure programs: TLP, CS and TTT. Since CS and TTT were the prevalent ACPs in the region, no other ACPs were included in the analysis. Those social studies teachers who were not listed as TLP, CS or TTT were not asked to participate in the study. Last, both school divisions taught their students for 180 days.

If these variables, such as analyzing another core subject, using a different state test, the number of students who are economically disadvantaged in the school divisions, or the type of ACP analyzed, are different from the study being reviewed here could alter the results of future study. Otherwise, these results would be misconstrued.

### *Threats Remaining in the Study*

A major threat in this study was the inability to control for prior achievement. The researcher was unable to retrieve the social studies content specific SOL scores in 2004-



2005 for school division A. As a result, content specific social studies SOL data that was accessible to the researcher from school division A was in the school year 2005-2006.

Content specific SOL social studies test in school division B was initiated in the 2006-2007 school year because school division B did test social studies content specific in the 2005-2006 school years. However, school division B tested in the 8<sup>th</sup> grade and end of course in 2005-2006 because school divisions had the option of choosing when to initiate the social studies content specific SOL tests before 2006. As a result, some school divisions initiated the testing earlier while others waited until the last possible year. Had the researcher used only the 8<sup>th</sup> grade civics and economics test and end of course test, by selecting a specific year, would have cut the sample size down considerably.

Another major threat included an unequal number of TTT, CS and TLP. As a result, the researcher used a convenience sample where their demographic and SOL raw average scale score data was analyzed. An overwhelming number of the participants were TLP teachers. Also, because the study was narrowed to the social studies curriculum on the secondary level, the results cannot be generalized to another subject or the primary level. Demographic effects such as student race and gender were not analyzed since the SOL raw average teachers scale score only gave the mean of their classes.

#### *Analysis of Teacher Licensure*

A one-way Analysis of Covariance (ANCOVA) was conducted to determine if there was a significant difference between the type of route in which a teacher had obtained their licensure (TLP, CS or TTT) and the 2006 SOL Social Studies raw scale

score. Two covariates, controlling for the number of years the teachers have taught and the age of the teacher, helped to tighten the study.

The researcher chose an ANCOVA instead of a regression analysis because a regression would have shown whether the types of programs studied in this dissertation could predict student achievement. Another reason why a linear regression was not chosen was that the cases did not represent a random sample and the all of the sample data that was collected were used in the analysis. It was the intent of the researcher to determine if there was a significant difference among the three groups that were studied and not predict a class outcome based upon the route in which a teacher receives their license. Because teachers volunteered to participate in the study, the researcher had to use a convenient sample.

All assumptions mentioned in the introduction were met to ensure that threats to internal validity were minimized. In all assumptions and analysis, alpha was set at .05. The homogeneity of variance or Levene's test was not significant  $F(2,162) = 0.34, p = .71$ . Because of the no significance, the researcher was able to use the entire sample size in an effort to increase the power. Next, the homogeneity of regression revealed that there was no significance  $F(1,32) = 2.53, p = .12$  and  $t(32) = 1.59, p = .12$ . This test helped to establish that no interaction existed between the covariate and the independent variable. Finally, the homogeneity of slopes was evaluated to determine any interaction between the covariate and the dependent variable. This test was also found to be not significant  $F(3, 146) = 1.829, p = .14$ .

The results for the study indicated that there was no significant difference on the route through which a teacher acquired their license and their students' achievement

based on social studies SOL scores,  $F(2, 162) = 1.50$ ,  $MSE = 2491.34$ ,  $p = .23$ , power = .31. Because there was no significance between the groups and the SOL scores, no post hoc tests were needed.

### *Summary*

Since there was no significance, stakeholders such as building principals, human resource personnel and division superintendents should be aware that route to licensure seems to have little bearing on student achievement as demonstrated in this study. However, as with any study, there are limitations that will determine the generalizability of these findings. In the next chapter, the summary of the findings, conclusions, limitations, and recommendations will be presented.

## CHAPTER 5

### SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

#### Introduction

This chapter provided a summary of the findings. The researcher will then provide conclusions of the study based on the analysis of the data provided from the *Teacher Demographic Survey* (Appendix A) and the 2006 SOL data. Limitations affecting the study will be discussed. Implications will also be identified from which recommendations for further study will be presented to the reader regarding future research based upon the analysis and a summary of this given study.

#### *Summary of the Findings*

In public schools across Virginia, there are concerns with finding effective fully endorsed teachers in key content areas (Virginia Department of Education, 2007). The Virginia Department of Education (2007) has reported some teacher shortages in social studies. In an effort to help acquire qualified teachers, colleges, universities, and public school divisions across the nation have initiated alternative certification programs (ACPs). Two such ACPs in Virginia that have been identified are Troops to Teachers (TTT) and Career Switchers (CS).

The researcher studied an urban and a semi-urban school division in Virginia with a total of 294 social studies teachers. These teachers were asked to complete a 17-question demographic survey that was delivered via the Internet. The dependent variable was the 2006 SOL Social Studies raw average scale score comprised of the teachers' class average and the independent variable was the licensure route (CS, TTT, TLP). The

covariates were the number of years teaching and the teacher's age. Two items (the covariates) from the survey were compiled with their 2006 SOL Social Studies raw average scale score and analyzed using SPSS. A 61% total response rate was obtained from both school divisions. In that response rate, 149 TLP, 18 CS and 11 TTT stated they taught social studies. As the data was compiled from the survey with the SOL class averages, the researcher was then able to match 135 TLP, 15 CS and 15 TTT for a total of 165 participants. The researcher's hypothesis that there would be no significant difference in the type of program (ACP or TLP) that teachers completed for certification and achievement in their students' SOL social studies scores when controlling for years of teaching experience and age was supported. This implies that there was not a difference in how an educator obtains their license in terms of student achievement. However, as illustrated in the limitations and the previous chapter, the power was low to moderate, indicating a need for further research to draw definite conclusions.

### *Conclusions of the Study*

As the researcher failed to find a significant difference between route to certification and student SOL scores and considering the importance of the issue, further research may be necessary. Given the inconclusive nature of this research, a principal or human resources personnel will have a greater pool of candidates from which to choose (Owings et al., 2006) since one route does not appear to be superior to the other. Further, researchers must also acknowledge that not being able to find a difference between routes does not mean that they are not the same. It does mean that this model may provide valuable insight where one study may be able to determine a significant difference between ACPs and TLPs.

Until a clear pattern has emerged in hiring quality educators, school divisions must keep in mind that it may cost up to a third of a teachers' salary to recruit, retain and replace a position that has been vacant. That is why it is imperative that principals find people who are committed to their jobs (Benner, 2000). Otherwise the teacher turnover will remain high, costing school divisions in excess of hundreds of thousands of dollars. But the most urgent matter is the child whom they teach. Those students who are taught by sub-par professionals will most likely be the ones that will not be able to reach their fullest potential because they were not provided an appropriate opportunity to learn.

#### *Limitations*

As with any study, there were limitations that have to be considered. An important limitation to note is the low power of the results. By identifying equal variances in the three groups, the researcher was able to use the entire sample size, which increased the power of the analysis to .3, which could be interpreted as low to moderate. However, this indicates that the researcher was only 30% likely to identify a difference between the three groups if there was in fact a difference. As a result, one cannot guarantee that they will be able to distinguish differences should there be any. If the sample size was larger for the CS and TTT groups, there may have been a greater chance that the power of the analysis would have been higher. Ideally, the researcher hoped to have a minimum of 50 subjects in each group. Unfortunately, the researcher had no control of who responded and how many in each group.

Other limitations of the study include the use of convenience sampling. Originally, the researcher wanted to use three school divisions; however, one school division chose not to participate altogether. After initial permission was granted to the researcher from

central administration, the decision to participate in the study was up to each social studies teacher. The researcher did not use any influence as to increase the sample size other than the follow up email to increase the response rate. After excluding the new teachers and those who did not teach a SOL tested course, and adding line items for teachers that taught more than one SOL tested course, the sample size was reduced to 165 participants. As a result, there was negative skewness in the sample size even after attempting to square root and log with no improvement. Further, a larger sample size of the three-licensure routes would have helped reduce any Type I errors. Typically, a sample size of 50 from each group would have increased the power much more.

Another limitation of this study was that only included social studies was analyzed because this was the only data that the researcher had access to in both divisions. The 6<sup>th</sup> and 7<sup>th</sup> grade math and English SOL tests were administered in both divisions for the 2006 school year to expand the testing in grades 6 – 8 as well as the end of course. The specific grade and teacher route was not analyzed due to the small sample sizes in each particular grade level / end of course. Highest degree completed and the teacher routes were also not compared because research has concluded that there is no significance between those social studies teachers that possess a bachelor's and those that possess a master's degree. Last, the study did not control for prior achievement since the researcher did not have that information available. Only the 2006 social studies SOL class scores were available to the researcher, which was given by teacher when they completed the study.

This study is also limited to Virginia due to the fact that all 50 states have their own curriculums and state assessments, and since it is up to each individual state department

of education to create an assessment suitable to the curriculum, there are no two identical assessments. No other school divisions outside the state were included since it would have been two different assessments, which would have complicated the analysis. Last, because there are numerous types of ACPs across the nation, only two types of ACPs (TTT and CS) were analyzed in this study.

### *Implications*

As with any research that is evaluated, the question remains: what can one imply from the analysis of the study? This dissertation attempted to answer a question public school administrators have been asking since the inception of ACPs: is there a particular group of teachers worth pursuing? Because there was no significance between the groups combined with a low to moderate effect size, one cannot say with absolute certainty that there is a distinguished or favorable group. As a result, the question remains. The only way that a clear difference could be determined is on an individual basis. Collins (2001) wrote that organizations are transformed from mediocrity to excellence by getting the right people to join. Taking a page from this book, building principals must also realize that there are outstanding and sub-par candidates in all groups, but if there are no significant differences between the groups, then it must be determined by the individual best suited for the position. Otherwise, if one does not secure the best candidate possible, then one takes the risk that a child may not receive the best education possible. If that is the case, then it is most certain that we are leaving children behind.

There are also financial implications as well. Until research distinguishes a clearly superior route to certification, school divisions must still allocate several thousands of dollars per teacher that leaves the division to recruit and retain a new employee. Once



researchers discern a way to distinguish the groups, isolate the source of teachers' successful traits and replicate them in teacher preparation programs millions of dollars could be saved over the course of several years. As budgets must cover more expenses every year, school superintendents are researching ways to find more cost effective items to replace those monies with the ones they are able to recoup. Currently, there is no difference between traditional teachers and alternative certified teachers, which implies that principals and human resource personnel should not weight any group more favorably than another. Should they prefer one group to another, they run a great risk of losing out on exceptional prospects.

A final possible implication of this study is that time in the classroom, whether in practicum experiences or student teaching, prior to becoming the teacher of record, did not create a significant difference in student achievement. One of the unassailable tenets of TLPs has been the internship or student teaching experience. Such programs assume that the more time a teacher has spent observing and student teaching prior to their first full time teaching job, the more effective they will be with their students. This study was not able to conclude this notion, at least with the populations chosen for the study.

#### *Recommendations for Further Study*

The conclusions of this study lead one to recommendations when conducting future studies. First, a larger sample size of TTT and CS is needed to help eliminate any potential errors by randomization of the sample size and to increase the power and thereby the likelihood of detecting a difference in the groups if there is a difference. Expanding the study across the state or nationally will enable any researcher to achieve a larger population.

Another recommendation would be to replicate this study to include math, science and special education teachers. The Virginia Department of Education has identified that math and special education as the number one and two most critical teacher shortage areas across the state. Because it is becoming more difficult to acquire a math teacher, it is all more the reason to review this matter, especially now that math and science are tested yearly due to NCLB. Teachers with these endorsements are harder to replace since the private sector pays more for math and science personnel and the demand for special education teachers continue to rise. Furthermore, as the AYP rates reach 100%, billions of dollars given to local education agencies are at risk because benchmarks are not met. As a result, there would be more teachers with an ACP endorsement.

Because there are a large number of ACPs, such as Teach For America, across the nation that were not used in this study, a researcher can expand his or her study to include them and compare to see which is more effective. By doing so, the state and federal government may be enticed to fund more monies into these programs if they are deemed effective, which may help reduce the shortage by producing quality teachers in a shorter period of time which would result in a cost benefit that would be passed on to the school division and taxpayer.

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## Appendix A

## The Teacher Demographic Survey

This survey asks questions regarding your demographic information. It will be used for research that can help better prepare future educators. Thank you in advance for your cooperation in this survey

Please be assured that your name and responses will remain confidential. Your principal or other central administration offices will not know how you responded. The form that you are completing on-line will be compiled with other responses and will only be accessed by the researcher.

Directions: Click on the appropriate response that best applies.

1) In what way did you obtain your teaching license?

☐ Troops to Teachers

☐ Career Switchers

☐ Traditional Education Program while obtaining initial license

2.) If you received your teaching license via the Troops to Teachers program, did you receive a stipend?

☐ Yes

☐ No

\_\_\_ Not applicable – I did not obtain my teaching license through this program

3) If you received funding from the Troops to Teacher grant, did you retire from the service?

\_\_\_ Yes

\_\_\_ No

4) How long have you been teaching?

\_\_\_ 0 – 3 years

\_\_\_ 4 – 6 years

\_\_\_ Longer than six years

5) How old were you when you started teaching?

\_\_\_ 22 - 28

\_\_\_ 29 - 35

\_\_\_ 36 - 42

\_\_\_ 43 - 49

\_\_\_ 50 - 56

6) What is your highest completed degree?

\_\_\_ Bachelor's

\_\_\_ Master's

\_\_\_ EdS or CAS

\_\_\_ Doctorate

7) If you have a Master's degree in Education, what is the area of concentration?

☐ Administration and Supervision

☐ Social Studies

☐ Special Education

☐ I do not have a Master's degree

8.) If you have a Master's degree not in Education,

what is the area of concentration? \_\_\_\_\_

☐ I do not have a Master's degree

9) Do you have another area of endorsement other than social studies?

☐ Yes

☐ No

10) Do you teach Special Education as well as social studies?

☐ Yes

☐ No

\*Please be assured that your name will not be shared with anyone and your results will remain confidential. Your name will be put into a drawing for a \$10 gift certificate, a DVD player or an Ipod once your survey is completed.

11) What is your first name? \_\_\_\_\_

12) What is your last name? \_\_\_\_\_

13) What Grade Level do you teach?

☐ 6th grade

☐ 7<sup>th</sup> grade

- ☐ 8<sup>th</sup> grade
- ☐ World Geography
- ☐ World History I
- ☐ World History II
- ☐ US History
- ☐ US Government

14) I am teaching in a.....

- ☐ Middle School
- ☐ High School

15) What is the name of the school where you teach this year? \_\_\_\_\_

16.) Prior to accepting your first contract as a teacher, approximately how many hours in the classroom as an observer or student teacher were required in your program for completion?

- ☐ less than fifty hours
- ☐ between fifty and one-hundred hours
- ☐ between one-hundred and one-hundred fifty hours
- ☐ greater than one-hundred fifty hours
- ☐ I do not remember

17) How old are you?

\_\_\_\_\_

\*If you prefer not to answer this question, please enter the number 999. Thank you

Thank you for taking the time to complete the survey. You are now entered in the drawing for 10 - \$20 gift certificates, 3 iPods and 3 DVD players.

Best wishes for a successful school year.

PLEASE CLICK THE "FINISH" BUTTON AT THE BOTTOM OF THE PAGE TO  
SUBMIT YOUR SURVEY.