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Attrition and Mobility: Analysis of the Educational and Employment History of Teacher
Education Graduates at the University of Tennessee, Knoxville

A Dissertation
Presented for the
Doctor of Philosophy
Degree
University of Tennessee-Knoxville

William Benjamin Wishart

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DEDICATIONS

This dissertation is dedicated to Theresa Wishart (my better half) without whose support I could never have reached this point. Further, I should include our children Ryan, Mac, and Emma in this dedication. They have all, as a family, been so very understanding and encouraging throughout this process, even when I have been too busy to carry my share of the load at home.

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ABSTRACT

The purpose of this study was to compare the employment retention and mobility patterns of the University of Tennessee, Knoxville's fifth year post-baccalaureate intern program completers with those of the alternative C licensure program participants employed between 2001 and 2005 in Tennessee public schools. A comparison of program groups was conducted from the perspective of attrition, as well as mobility, and how this related to teacher preparation variables including grade point average, Praxis scores, and program type. Attrition was measured for each year as the number and percentage of each group or cohort not returning the following year to teach in a Tennessee public school and was disaggregated by and program type. A multi-year attrition rate for each program type group was also calculated for three and five year periods. The Socio Economic Status (SES) of initial and final school placements was analyzed and compared to determine the number and percentage of each cohort working in low socio-economic schools (as defined by the Title I participation/designation). Data related to school placement were also utilized to determine the number and percentage of those who transferred to or away from low socio-economic schools.

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Figure 1. *Results of Darling-Hammond's 2000 Cost Analysis Study of Teacher Attrition* 30

CHAPTER 1: INTRODUCTION

During the past decade, the nation's educational system has come under harsh criticism. A steady stream of articles and reports from various groups, organizations, and political figures highlight the problems with our nation's public schools and teacher education programs (Lewin, 2008). The No Child Left Behind (NCLB) legislation, passed in 2001, established a national focus on PreK-12 schools and the lack of student achievement as measured by standardized testing (U.S. Department of Education, 2001). As a part of this legislation, a set of demanding targets for student progress has been established and substantial emphasis has been placed on assuring that all teachers are "Highly Qualified". Moreover, this legislation demanded that all classroom teachers achieve "Highly Qualified" status by the 2005-2006 academic year (U.S. Department of Education, 2001). School districts have struggled to provide professional development aimed at meeting targets for current teachers, as well as to hire new teachers that meet this requirement (National Council on Teacher Quality, 2007; U. S. Department of Education, 2003).

Low standardized test results have led politicians and educators to focus on the qualifications of our nation's teachers, and led many to question the effectiveness of teacher education programs across the country (Levine, 2006; U. S. Department of Education, 2003; Walsh, 2002, 2006). Substantial criticism, at both the state and national levels, has been directed at higher education and the job being done in producing qualified teachers (National Council on Teacher Quality, 2007). Walsh (2002) suggests that colleges of education are not producing new teachers at a rate required to replace an aging teacher population; and that those produced are not equipped with the knowledge, skills and dispositions needed to be successful in the classroom.

As president of the National Council on Teacher Quality, Kate Walsh, in the July 2002 Annual Report on Teacher Quality entitled *Meeting the Highly Qualified Challenge*, essentially called for the dismantling of teacher education as we know it. Walsh said that the teacher education system in higher education is broken and suggested that the requirements for certification are burdensome. Walsh's contention was that alternative certification programs attract higher quality recruits and produce a stronger, more effective teacher pool. Further, she contended that effective teaching can be traced to two essential ingredients: content knowledge and verbal ability. However, much of this criticism was refuted in a report by Linda Darling-Hammond and Peter Young (2002). These researchers, well-known leaders in education, indicated that teacher effectiveness was much too complex to be measured or predicted by content knowledge and verbal ability alone.

There continues to be a substantial national debate on the value of teacher education in its current form. Walsh (2006) also criticized the American Educational Research Association's (AERA) report *Studying Teacher Education* and continued to admonish colleges of education for doing such a poor job of preparing teachers. Darling-Hammond and Young (2002) argued that watering down standards for licensure is not a viable solution to the teacher shortage or problems with student achievement. Darling-Hammond (2006b) also asserted that "a growing body of evidence indicated that teachers who lack adequate initial preparation are more likely to leave the profession".

Research conducted by Richard Ingersoll (2003) indicated that much of the teacher shortage is related to high levels of teacher turnover and that any viable solution must address teacher turnover. A 2000 Texas study revealed an annual turnover rate of 15% for new teachers

and resulted in more than a 40% attrition rate over the first three years of teaching. Based on an estimated cost of \$8,000 for each recruit that leaves within the first few years, the turnover resulted in a \$329 million dollar cost to the state education system (Darling-Hammond, 2003).

Retention rates for some Alternative Certification programs such as “Teach for America” also have been reported as very poor. Raymond, Fletcher and Luque (2001) reported an 80% attrition rate for “Teach for America” after two years.

Considering the strong evidence that teacher effectiveness increases sharply after the first few years (Darling-Hammond, 2000; Kain & Singleton, 1996), it becomes apparent that attrition reduces the overall effectiveness of the nation’s practicing teachers (Darling-Hammond, 2003). The heavy cost of attrition is a burden on school systems across the country, and these estimates do not take into account the costs in terms of student achievement.

Currently, tens of thousands of teachers are eligible to retire across the country. According to the Tennessee State Department of Education (2007), approximately 20,000 of Tennessee's teachers are eligible for retirement. This fact, coupled with concerns about teacher quality, has sparked a great deal of debate at the state level about how to meet an increasing demand for highly qualified teachers (Rhoda, 2007). During the 2008 Tennessee state budget meetings, Governor Bredesen emphasized that teacher education would be a state priority in the coming years. He encouraged state education leaders to improve teacher education within their institutions during the 2008 budget year (Rhoda, 2007).

The current teacher shortage coupled with a demand for higher quality teachers has created a challenge for teacher education programs. While there is an immediate need to produce teachers to fill empty teaching positions, there is also a demand for skilled and highly qualified

teachers. The governor asked that roadblocks be removed from the licensing process for new teachers in Tennessee (Rhoda, 2007). Requiring less from candidates (e.g., coursework and training), while expecting better results in the classroom presents a dilemma. Efforts to streamline licensure requirements have resulted in the development of a number of alternative licensure programs within the state. Alternative programs often reduce the number of required courses as well as the number of hours of field-based experience required for licensure as compared to traditional teacher education programs (Darling-Hammond & Berry, 2006).

Walsh (2002) argued that teachers licensed through alternative programs are as effective and as likely to stay in the field as teachers trained in traditional programs. In contrast, others contend that they are not as effective or likely to remain in the profession (Darling-Hammond, 2002; Raymond, M., Fletcher, S., & Luque, J., 2001). This issue is complicated by the wide array of influencing factors that must be taken into consideration when defining and measuring success in the classroom.

What constitutes success continues to be an open debate. For example, one factor found to influence teacher effectiveness as measured by test scores in Tennessee is longevity or teaching experience. Some researchers point out that new teachers take several years to fully develop their classroom skills, and most do not hit full stride in terms of effectiveness for three to five years (Darling-Hammond, 2000; Kain & Singleton, 1996). Other researchers contend that content knowledge is sufficient to get started and that pedagogy and experience can be developed in the classroom with appropriate mentoring (Walsh, 2002). Darling-Hammond (2002) argued that pedagogy and guided classroom experience in the form of student teaching or an internship are key to providing the nuanced delivery of the content and classroom management skills

required for student success. In fact, the argument has been made that a lack of knowledge and skill related to pedagogy and classroom management may lead to job frustration and excessive teacher turnover. Attrition rates for teachers have been reported to be as high as 50% in the first five years of employment (Ingersoll, 2003; Raymond, Fletcher, & Luque, 2001). Teacher turnover lowers the overall experience level of teachers in the field and is an important factor in student achievement. Consequently, any examination of teacher licensure paths should include analysis of turnover rates.

Statement of the Problem

Teacher turnover is an ongoing problem across the country that drains educational resources and may contribute to a less effective teacher pool. While some studies have compared the turnover rates of teachers produced through various types of licensure programs, not enough data are available to substantiate claims regarding the effectiveness of these programs. Variations in program structure across states and institutions of higher education (IHEs) suggest a need for multiple studies of attrition and mobility in order to build a knowledge base in this area, especially considering the link established between teacher retention and teacher effectiveness. More research is needed in order to identify how participation in various licensure programs may influence teacher turnover rates.

Purpose

Better preparation, resulting in more successful teachers that remain committed to teaching as a career, is a goal of all teacher education programs. Teacher licensure programs within the College of Education, Health, and Human Sciences at the University of Tennessee, Knoxville (UTK) are working to strengthen the knowledge, skills, and dispositions of teacher

candidates and promote retention. The purpose of this study was to compare the employment retention and mobility patterns of UTK's fifth year post-baccalaureate intern program completers with those of the UTK alternative C licensure program participants employed between 2001 and 2005 in Tennessee public schools, thereby providing more data about retention and mobility among traditionally trained teachers and those entering classrooms via alternative routes.

Significance of the Study

Turnover has been linked to teacher shortages as well as student achievement. On a state and national level, this study will contribute to the overall body of research related to teacher turnover in both its forms: attrition and mobility. Teacher education programs vary widely within classifications or program types, including fifth year, four year, and alternative. The unique nature of individual programs makes generalizations problematic and indicates the need for multiple studies to make possible comparisons. This study will provide the University of Tennessee, Knoxville's College of Education, Health and Human Sciences teacher education programs valuable information. By providing program specific data detailing the placement, retention, and mobility patterns of fifth year program completers and alternative C participants in Tennessee public schools, the study may be useful to the University of Tennessee and other entities in identifying and addressing teacher retention issues.

Research Questions

The following questions provided the foundation of this study:

1. What were the employment patterns (employment vs. non-employment) of UTK's fifth year post-baccalaureate completers and alternative C licensure program participants (within Tennessee public schools) between 2001 and 2005?

2. What is the relationship between student academic and program variables including grade point average, Praxis scores, and program type with teacher attrition and mobility during the 2001 – 2005 timeframe?
3. For how many years were participants of each program employed in Tennessee public schools within the five year span (2001 – 2005)?
4. How did participants of the two program types compare in movement between public schools within the state of Tennessee (2001 – 2005)?
5. Does movement reveal patterns of migration to or away from schools of low socio-economic level during the study's timeframe (2001-2005)?

Methodology

A case study design was used as described in Robert Yin's Case Study Research Design and Methods (2003). Descriptive statistics were applied to data made available by the University of Tennessee, Knoxville's College of Education, Health, and Human Sciences' program in teacher education. Data for the study were limited to UTK program completers licensed through the college's fifth year post-baccalaureate program and participants of UTK's state approved alternative C licensure program between 2001 and 2005 (see definition of terms).

Study Population

This study was focused on a population of (836) completers of the fifth year post-baccalaureate initial licensure teacher education program (see definition of terms) and (45) participants of the state approved alternative C licensure program (see definition of terms) at the University of Tennessee, Knoxville who were employed by Tennessee public schools between 2001 and 2005. Study participants from the Fifth year program are referred to as "completers" as

they have finished their program and are fully licensed while individuals from the alternative C program are referred to as participants. These individuals are hired as teacher of record by a school system and begin their teaching career provisionally licensed. Program licensure requirements are completed over the first two or three years of employment through coursework and positive classroom evaluations.

Procedures

Existing data, from the University of Tennessee, Knoxville teacher education program were used for this study including employment data provided to the university by the Tennessee State Department of Education. Data from the state department contained the education, licensure and employment history of Tennessee public school teachers between 2001 and 2005 who graduated from and were licensed on recommendation by the University of Tennessee, Knoxville. No students or employers were identified in the study, and appropriate IRB forms were filed. A comparison of program groups was conducted from the perspective of attrition, as well as mobility, and how this related to teacher preparation variables including grade point average, Praxis scores, and program type (fifth year or alternative C).

Teachers were grouped in cohorts based on their first year of eligibility for employment in Tennessee K-12 public schools between 2001 and 2005, and by program type (fifth year or alternative C). The data available delimited the scope of the study to program completers teaching in public schools in Tennessee. Not all fifth year program completers work in Tennessee public schools, nor do they all seek and find employment immediately upon program completion. Approximately 87% percent of 5th year program completers at the University of Tennessee, Knoxville take teaching positions upon program completion, and of those teaching

approximately 15 percent teach out of state or in private schools. All alternative C licensure participants teach, as they must be hired in order to enter the program.

Licensure areas of participants in the study included: art, elementary, English, foreign language (French, German, Latin, and Spanish), math, science (biology, chemistry, earth science, and physics), social sciences (geography, government, and history), and special education (modified, comprehensive, and deaf and hard of hearing). Attrition was defined and measured for each year as the number and percentage of each group or cohort of teachers not returning the following year to teach in a Tennessee public school and was disaggregated by program type (fifth year or alternative C). A multi-year attrition rate for each program type group was also calculated for three and five year periods. The Socio Economic Status (SES) of initial and final school placements was analyzed and compared to determine the number and percentage of each cohort working in low socio-economic schools (as defined by the Title I participation/designation). Data related to school placement were also utilized to determine the number and percentage of those returning who transferred to or away from low socio-economic schools. Grade point averages were determined for each cohort group by program type. Additionally, average Praxis scores were determined for each cohort based on program type and tests taken.

Analysis of Data

Descriptive statistics were used to compare completers of the fifth year post-baccalaureate program with the alternative C licensure program participants at the University of Tennessee, Knoxville in terms of teacher attrition and mobility for those teaching in Tennessee

public schools. The study also compared grade point averages and Praxis scores with attrition and mobility rates.

Data sources included University of Tennessee records as well as data supplied to the university by the Tennessee State Department of Education, detailing teacher licensure, placements, and educational background between 2001 and 2005. Because the state database contained varying amounts of longitudinal data for each individual, percentages were used to compare attrition rates and mobility for groups or cohorts established by the year of program completion for fifth year post-baccalaureate program completers and year of initial employment for alternative C licensure participants. The ability to make comparisons and determine relationships was limited by the size of individual comparison groups.

The effect of school placement was also considered by examining how school SES levels were associated with attrition and or mobility of program completers (fifth year and alternative C). Specifically, the study looked at how the percentage of low SES placements (as defined by the Title I participation/designation) rose or fell over time, revealing patterns of migration to or from low SES level schools. Table 1 describes the variables to be considered, the sources of the data, and the statistical application or treatment.

Table 1. *Data Sources and Statistical Treatment*

Variable	Data Source	Statistical Treatment
Completers Teaching in TN	UTK CEHHS Records	Number by Program, Cohort & Year
Attrition Rate	UTK CEHHS Records*	Number/Percent by Program, Cohort & Year
Transfer Rate	UTK CEHHS Records*	Number/Percent by Program, Cohort & Year
Praxis Scores	UTK CEHHS Records	Average Score by Program, Test Code , Cohort & Year
Grade Point Average (GPA)	UTK CEHHS Records	Average GPA by Program, Cohort & Year
School Socio Economic Status (Title I)	TN Department of Ed Website	Number/Percent in Low SES (Title I) Schools by Program, Cohort & Year

Note:* Data obtained from records originally supplied to the University of Tennessee, Knoxville by the Tennessee State Department of Education

Limitations

1. The study has a limited number of subjects; data for alternative C and individual program areas contain relatively small numbers.
2. Study findings were limited to University of Tennessee, Knoxville's fifth year post-baccalaureate program completers and alternative C licensure program participants employed by public schools within Tennessee between 2001 and 2005.
3. Results may not be generalized beyond the study groups.

Assumptions

1. The subjects are representative of their programs.
2. The Tennessee State Department of Education's database, for the period of the study, was up to date and accurate.

3. The College of Education, Health, and Human Sciences' program records, for the period of the study, were up to date and accurate.

Delimitations

The study is small in scope and does not look beyond UTK's fifth year completers and alternative C program participants that taught in Tennessee K-12 public schools between 2001 and 2005. Employment data were only available for those completing a degree at the University of Tennessee, Knoxville. While most do complete a degree, it is possible to complete program licensure requirements without completing a degree. The focus was on those teaching in Tennessee K-12 public schools and consequently UTK program completers teaching out of state or in private schools were not a part of this study.

Definition of Terms

1. *5th Year Post-baccalaureate Program*: is characterized or defined by a year-long internship accompanied by coursework that brings candidates to within 12 to 15 semester hours of completion of a Master's degree (depending on the program). Students may apply for admission to teacher education when they have met initial screening criteria (including a minimum number of credit hours with a 2.7 GPA). Applicants are interviewed individually by an admission board representing the preferred content area and ultimately are either admitted or denied admission. Candidates complete a series of core courses (Educational Psychology 210 and 401, Cultural Studies 400, Special Education 401, and Instructional Technology 486) as well as field experience (Elementary Education 351, Secondary Education 352, Art Education 350, Special Education 420, or Child and Family Studies 470) and their bachelor's degree before

advancing to the year-long internship. The internship includes 24 graduate level credits including Education 574, 575, and 591 or the equivalent.

2. *Alternative C Licensure:* is defined as those licensed through the University of Tennessee, Knoxville's alternative C licensure program requiring the completion of between 18 and 28 hours of course work with a grade of C or better and an overall grade point of 2.8 or better. A program licensure specialist examines the individual's credentials (which must include a bachelor's degree), and plans and provides a course of study for the individual including Cultural Studies 400, Ed Psych 401, Special Ed 402 and IT 486 or the equivalent. Participants must also be hired and teach successfully (one year with a positive formal evaluation) during the completion of their coursework. The one year alternative C license may be renewed twice while completing coursework.
3. *Attrition:* For the purposes of this study, attrition was defined as the loss of UTK trained teachers licensed through its 5th year post-baccalaureate or alternative C licensure programs and teaching in Tennessee public schools. Losses included all UTK program participants (5th year and alternative C) leaving Tennessee public schools without regard to whether they leave to teach in private schools or out of state schools or if they leave the profession all together. Any loss was considered attrition. Attrition over time was calculated based on actual loss over time taking into consideration those that may have left and later returned to the classroom.
4. *Fifth Year Program Completer:* For the purposes of this study a program completer was defined as one successfully completing the coursework, field experiences and other requirements necessary for licensure within their program or subject area through the

UTK 5th year post-baccalaureate program. Program completion is not necessarily tied to a degree.

5. *Alternative C Program Participant*_ For the purposes of this study an alternative C participant refers to those who have met the requirements for and been accepted into the alternative C program at the University of Tennessee, Knoxville. Alternative C program participants complete their programs over a one to three year timeframe while working as a teacher of record.
6. *Mobility*: For the purposes of this study, mobility was defined as the movement of teachers between schools.
7. *Leavers*: Teachers not returning to teach in a public school for one or more years were referred to as “leavers”.
8. *Movers*: Individuals returning to the classroom, but not to the same school, were considered “movers”.
9. *Stayers*: Individual teachers returning to the same school were considered “stayers”

Organization of the Study

The study is organized in five chapters. Chapter 1 provides an introduction, purpose of the study, research questions, population, procedures, analysis of data, significance of the study, assumptions, limitations, definition of terms, and organization of the study. Chapter 2 contains a review of pertinent literature. Chapter 3 provides a detailed explanation of the methodology used to collect and analyze data, including the selection of subjects in the study, data collection procedures and instrumentation, and procedures used to analyze data pertaining to the two

groups of subjects. Chapter 4 presents the findings of the study. Chapter 5 provides conclusions, discussion and recommendations for further study.

CHAPTER 2: REVIEW OF LITERATURE

Introduction

There is a great deal of debate surrounding teacher education and credentialing. No Child Left Behind (NCLB) legislation has brought unprecedented focus to teacher preparation and the notion of what it means to be “highly qualified” (Darling-Hammond & Berry, 2006; Levine, 2006; U. S. Department of Education, 2001). Policy makers, administrators, teachers, and parents are unanimous in their desire for classrooms to be staffed with well-qualified and effective teachers. However, while many will debate the reasons, few will argue that school systems across the country are struggling to hire and retain highly qualified teachers (National Council on Teacher Quality, 2007; U. S. Department of Education, 2002).

This chapter contains a review of literature pertinent to this study and is divided into four sections: a) teacher attrition, mobility, and turnover; b) teacher preparation and induction; c) student performance; and d) financial implications. Each section concludes with a brief summary of key points obtained from the literature and included in the section.

Teacher Attrition, Mobility, and Turnover

Attrition, mobility, and turnover represent separate issues which, for clarity within this study, need to be defined. *Attrition* includes two subgroups of leavers: those who do not teach at any subsequent time during the period of study and those who return to teach after an absence of one or more years. *Mobility* is defined as moving between schools. Individuals who move between schools are referred to as *movers*. Attrition in combination with mobility are considered *turnover*. Literature related to these terms is discussed within this section.

Attrition

Often the numbers associated with teacher attrition vary considerably. The main reason for this variance is that researchers define attrition differently (Ingersoll, 2003). Depending on the focus and scope of the study, some researchers define attrition as including only those who leave the profession for one or more years while others include those who leave a school whether by transfer or to take a position in another district. As a result, very similar research may produce very different outcomes. This is not to say that teacher mobility or movement between schools is not important. Ingersoll (2003) reminds us that the district or school that loses a teacher is faced with replacing him/her regardless of the reason for the teacher's leaving. Thus, the ramifications are the same in terms of the effort and expense incurred (Hunt & Carroll, 2002; Carroll, 2007), not to mention lower student performance (Murnane & Steele, 2007).

People leave their jobs for various reasons. The four reasons most often cited in a National Center for Educational Statistics (Marvel, Lyter, Peltola, Strizek & Morton, 2006) report on teacher attrition and mobility include: a) retirement, b) a better job or career, c) child rearing, and d) dissatisfaction with teaching as a career. Not all attrition is a bad thing. Some level of attrition is necessary and desirable, allowing systems to bring in talented and energetic people with fresh ideas and to reduce the number of unqualified or ineffective teachers (Alliance for Excellent Education, 2008; Ingersoll, 2001; NCTAF, 2007). The concern should not be about whether there is attrition in the teaching profession, but whether the attrition rate is too high. Is attrition higher in teaching than that of other professions? Is it high enough to be damaging? Are systems losing more than unqualified and ineffective teachers that really do not belong? Ingersoll (2001) said "yes".

While some teacher attrition is unavoidable, the levels of attrition and circumstances leading to critically high attrition are often debated. Research has produced a range of results revealing higher than expected attrition rates for the profession. The National Commission on Teaching and America's Future (Hunt & Carroll, 2002) reported that approximately one-third of new hires leave teaching in the first three years. Additional research (Ingersoll, 2003; Reed, Ruben, & Barbour, 2006) reported the attrition rate as 50% in the first five years. Further, a study by the Texas State Board for Educator Certification (2000) revealed an annual attrition rate of 15% for first-year teachers and a 40% attrition rate over the first three years of teaching. A more recent study by the National Council on Teaching and America's Future (Carroll, 2007) reported that over fifteen years teacher attrition had grown by 50% rising from 170,000 leavers in the 1987-88 school year to 340,000 in 2003-04. While the majority of studies reported that the teaching profession suffers higher levels of attrition than other comparable professions, there are some exceptions. Harris and Adams (2005) suggested that, when compared to similar professions, attrition is not significantly higher. Further, they argued that retirement plays a much larger role than reported by Ingersoll in his research. Henke and Zahn (2001), using data from a baccalaureate and beyond longitudinal study of 1992-93 graduates, reported comparatively low attrition rates for teachers. When they compared survey results from 1994 and 1997 they found teaching to be a relatively stable occupation.

In general, attrition rates are often higher in poor urban and rural schools and higher still for specific subject areas including math, science, and special education (Guin, 2004; Ingersoll, 2003). In fact, in some cases the teacher drop-out rate is higher than the student drop-out rate. In Philadelphia, of the 919 teachers hired in 1999, only 30% were still teaching in 2005 while 58%

of the 12,000 students entering ninth grade in 1999 had completed graduation requirements (Carroll, 2007). This equates to a 70% dropout rate for teachers compared to a 42% drop out rate for students over the six-year period. A Schools and Staffing Survey (SASS) reported that during the 2004-2005 school year over 19% of new (no full-time experience) public school teachers left the classroom and that another 17% changed schools or districts. The highest attrition rates are reported for new, inexperienced teachers while older, more experienced teachers, as well as higher paid teachers are less likely to leave prior to retirement (Curran, 2000).

A report by Hunt and Carroll (2003) revealed that during the 1999-2000 school year 287,370 teachers left teaching. Only 66,788 (23%) of that number retired while 220,582 others left for other pursuits. A later Teacher Follow-up Survey (Carroll, 2007) revealed that 332,700 left teaching during the 2004-2005 school year. Of those, 88,271 (27%) retired and 245,429 left for other pursuits. Curran (2000) reported that the approximately 700,000 teachers who expected to retire over the next ten years represented only 28% of the projected hiring needs. Based on his research, Ingersoll (2003) concluded that much of the teacher shortage is related to teacher attrition and that any viable solution must address teacher attrition.

Schools and Staffing Survey (SASS) results on high need areas including math and science, reported by Hampden-Thomson, Herring & Kienzl (2008), revealed that math and science teacher attrition has remained relatively constant while the attrition rate for other areas has risen. Math and science teachers were less likely to leave, but if they choose to leave, they are more likely than teachers in general to report salary as their reason for leaving. Additionally, of the math and science teachers who leave, it is the older teachers and those making less than \$30,000 dollars a year who are more likely to leave the profession.

Mobility

Closely related to attrition is the problem of mobility. As previously stated, mobility may be described as the movement of teachers between schools. While the problem of mobility does not result in a net loss to the teaching profession, it does create problems for schools forced to replace these teachers. Schools that suffer a high mobility rate lose continuity in instruction and may end up with a less experienced staff who are not skilled enough to make curricular decisions or to provide appropriate instruction (Loeb, Darling-Hammond, & Luczak, 2005; Ingersoll, 2003).

Loeb, Darling-Hammond & Luczak (2005) reported that four major factors influence mobility or a teacher's decision to leave a school or district: a) salary, b) working conditions, c) preparation, and d) mentoring support. Although the percentage of teachers leaving the classroom has increased over the years, the percentage of teachers changing schools or districts has remained relatively constant between 1989 and 2005. Ingersoll (2003) reports that approximately seven to eight percent of public school teachers move each year.

According to the National Center for Education Statistics (Marvel, Lyter, Peltola, & Morton, 2007), 38% of public school teachers who transferred between schools reported their primary reason for the transfer was to seek a better teaching assignment. Further, dissatisfaction with workplace conditions (32.7%) and with administrative support (37.2%) were reported as other primary reasons for changing schools. Data from the MetLife Survey of the American Teachers (Markow & Martin, 2005) showed a correlation between positive workplace relationships and higher retention rates among teachers. The survey also revealed that teachers

who stated that they were likely to transfer were also more likely to have had difficult relations with parents, the principal, and their students.

Turnover

Turnover is described in this study as the loss of teachers through any avenue including attrition (leavers), and those who transfers between schools (movers). The national teacher turnover rate has risen to 16.8%; however, in urban schools, turnover is over 20% (Carroll, 2007). The Bureau of National Affairs reported the annual turnover rate for all occupations at 11% in 2004. By comparison, teacher turnover is alarmingly high. The teaching profession has been compared to a bucket with a hole in it (Colgan, 2004; Carroll, 2007). According to Colgan (2004, p. 23) “No teacher supply strategy will ever keep our schools supplied with qualified teachers unless we reverse the debilitating turnover rates.”

Luekens, Lyter, and Fox (2004) found that while a significant portion of turnover can be attributed to retirement, family responsibilities, or involuntary attrition, almost one-half of teachers leave as a result of job dissatisfaction or to search for better career opportunities. Their study, using data from NCES Teacher Follow-up Surveys, confirmed that salary and working conditions played a significant role in the teachers' decisions to change schools or leave the profession. Further, male teachers were more likely to leave the profession in search of higher salaries than females. With regard to salaries, Johnson, Berg and Donaldson (2005) found that while higher salaries may attract and even convince some teachers to remain in difficult teaching assignments, positive working conditions tend to offset lower pay.

Additionally, Luekens, Lyter, and Fox (2004) found that while the number of teachers moving in search of a better teaching assignment or working conditions is significant, an even

greater number are permanently leaving the profession. This was not the case until in the nineties when the total number of leavers surpassed the total number of movers. During the 1988-1989 school year, teacher turnover in public schools was 13.5% with 7.9% movers and 5.6% leavers, but by the 2004-2005 school year turnover had risen to 16.5% with 8.1% movers and 8.4% leavers. So, while the percentage of movers remained relatively constant the percentage leaving public schools had risen considerably (Carroll, 2007). In private schools, turnover in 1988-1989 was 23.2% with 9.5% moving and 12.7% leaving while in the 2004-2005 school year turnover was 19.5% with 5.9% moving and 13.6% leaving. During 1993-1994 school year, the total number of individuals leaving the profession began to surpass the total number entering the profession and by the 1999-2000 school year the number leaving exceeded the number entering by as many as 50,000 or 23% (Hunt & Carroll, 2003).

Two common misperceptions have been, a) that teacher shortages were the result of student population growth, reduction in class size, and retirement, and b) that the solution was to produce more teachers (Ingersoll, 2003; Carroll, 2007). During the nineties, although there were significantly more teachers trained each year, the gap between those leaving and those entering continued to widen. Throughout the nineties the nation's teacher preparation colleges increased the number of teachers produced each year by 50% (Carroll, 2007). In 1999, about 160,000 newly licensed teachers were produced; however, only 85,000 of them actually entered the profession (Hunt & Carroll, 2003). Unfortunately, too many chose a career outside the teaching profession.

Research conducted in the early years of the decade made clear that the shortage of teachers has more to do with the number of teachers leaving the profession than anything else

(Ingersoll, 2003; Hunt & Carroll, 2002). Richard Ingersoll (2002) reported an 11.9% annual turnover rate for non-teaching occupations between 1998 and 2000 and a 15.7% rate for teachers in 2000-2001. Further, Ingersoll and Perda, reported that, if you consider the number of those with education degrees who are eligible for certification, there are enough trained teachers to meet the need for new teachers including the areas of math and science (Ingersoll, 2002; Ingersoll & Perda, 2009).

Not surprisingly, statistics show that the number of teachers choosing to leave the profession in any given year is dependent on current economic conditions. Fewer teachers typically leave during an economic downturn, and conversely, a higher number choose to do so when the job market is more favorable. It should be noted that of those who leave, approximately 20 to 25% may at some point return to the classroom (Harris & Adams, 2007; Hunt & Carroll, 2003).

Recap of Attrition, Mobility, and Turnover

The research reported in this section is consistent with regard to the following generalizations:

- Attrition refers to teachers leaving the profession (leavers) although there is no uniform definition.
- Mobility refers to teachers moving between schools and school districts (movers).
- Turnover includes both attrition (leavers) and mobility (movers).
- Nationally, the turnover rate for teachers is 16.8% and higher in poor, hard to staff, urban and rural schools.
- Turnover for the entire workforce is approximately 11-12%.

- Churning of the teacher pool lowers effectiveness, particularly for hard to staff schools.
- Retirement accounts for less than a third of those leaving the profession.
- For a number of years more teachers have been leaving the teaching profession than entering it.
- Attrition and mobility (constituting teacher turnover) are significant problems for schools and the educational process.

Student Performance

This section describes how turnover in its various forms relates to teacher effectiveness and student performance in the classroom. The issue of longevity is relevant to teacher effectiveness, and studies that evaluate the effectiveness of licensure programs need to assess longevity or how long teachers licensed through various types of programs remain in their positions (Ingersoll, 2003; Newmann, Smith, Allensworth, & Bryk, 2001). High attrition rates also suggest a need for longitudinal studies (Legler, 2002) which take into account the quality of preparation programs, since the quality of preparation programs varies widely (Darling-Hammond, Chung, & Frelow, 2002).

While traditional preparation programs vary in coursework and practicum requirements, alternative programs vary widely. Some require a significant amount of coursework and classroom experience while others require very little. Vermont's Peer Review Program (<http://education.vermont.gov/new/html/licensing/alternate.html>) requires only that the prospective teacher provide proof of eligibility through an interview and portfolio process. Candidates document how they meet the 16 Principles for Vermont Educators and competency requirements for the endorsements they seek through coursework and experiences which they

share through the interview and portfolio. A review board determines eligibility for licensure and no specific coursework or experience is required. Others such as the New York City Teaching Fellows (<http://www.nycteachingfellows.org/>) are very selective and require participation in an intensive summer orientation and enrollment in a subsidized masters program that is completed during the first three years of employment.

Retention rates for teachers licensed by alternative certification programs that fail to include student teaching, strong mentoring, or methods courses on meeting the needs of diverse learners are often poor (Andrew & Schwab, 1995; Darling-Hammond, 2000; Hunt & Carroll, 2002) but even programs with high standards can suffer high turnover. Teach for America's (TFA) retention rate, for example, has been reported as very poor. While applicants are carefully screened and held to high entry standards, Raymond, Fletcher, and Luque (2001) reported an 80% attrition rate for Teach for America after two years.

TFA (<http://www.teachforamerica.org/corps/training.htm>) candidates attend a five week summer institute prior to entering the classroom as teachers of record. As a part of the institute they attend classes and clinics on content and pedagogy. Each day, with support, they plan and provide one hour of small group instruction and one hour of large group instruction. Once in the classroom as teachers of record they are supported throughout the year with focused observations coupled with in depth planning sessions and periodic seminars, as well as online support. TFA program participants make a two-year commitment to teaching and approximately 90% follow through with that promise. However, participants leave the classroom in large numbers at the end of that commitment. It is noteworthy that many TFA graduates stay in education, but often not as classroom teachers. While this type of program may offer short-term help in critical areas, based

on reported retention rates, these types of programs do not appear to provide teacher who remain in the classroom longterm. Preparation, induction, and support have been found to impact teacher retention (Darling-Hammond, 2002).

Research has shown that the single biggest influence affecting student performance is teacher effectiveness (Haycock, 1998; Rice, 2003; Rivkin, Hanushek, & Kain, 2005; Sanders & Horn, 1998). This is particularly true for low-performing, minority students (Clotfelter, Ladd, & Vigdor, 2007). Other research reveals that newly hired teachers become more effective with experience. The typical teacher continues to improve significantly through the first several years in the classroom (Darling-Hammond, 2000; Ingersoll, 2003; Kain & Singleton, 1996; Rivkin, Hanushek, & Kain, 2005).

Taking teacher effectiveness a step further, Sanders and Rivers (1996) studied the effect of teachers' on student achievement. Using Tennessee value-added data, the researchers studied teachers' effect on student achievement and found it to be both "additive and cumulative". The findings were so significant that the researchers concluded that students who are assigned ineffective teachers in consecutive years will never recover academically, even if assigned effective teachers in subsequent years. Research in this area speaks to the need for school systems to hire and retain the most qualified and effective teachers (Sanders & Horn, 1998).

Studies also show that large numbers of open positions resulting from high turnover are not left open, but are often filled with ineffective teachers (Hanushek, Kain, & Rivkin, 2004; Jackson, 2009; Murnane & Steele, 2007). Turnover, which is typically higher in low-income urban settings, has a direct effect on student achievement (Darling-Hammond & Sykes, 2003;

Haycock, 1998). High turnover rates leave low-performing schools with the least experienced and least effective teachers (Haycock, 1998; Carroll, 2007). Curricular continuity and teamwork can suffer as a result of turnover, in turn, lowering the overall effectiveness of a school (Lake, Hill, O'Toole, & Celio, 1999; Newmann, Smith, Allensworth, & Bryk, 2001).

Results from a case study done with 15 elementary schools revealed a direct negative correlation between turnover rates and student performance (Guin, 2004). Schools with higher teacher turnover rates had fewer students meeting reading and math standards on statewide assessments, suggesting that efforts to improve student performance should include addressing teacher turnover rates.

Teacher preparation and licensure across the country is in a state of flux. Evidence suggests that teacher effectiveness increases sharply during the first few years (Darling-Hammond, 2000; Ingersoll, 2003; Kain & Singleton, 1996; Rivkin, Hanushek, & Kain, 2005), which supports the notion that high attrition reduces the overall effectiveness of the nation's practicing teachers (Darling-Hammond, 2003).

Those most concerned with teacher shortages promote multiple pathways to teaching that ease the transition to teaching and limit the obstacles that candidates must navigate when securing licensure (Darling-Hammond, 2002; Walsh, 2001). Further, Walsh (2001) took the position that recruits should be transitionally licensed, learning pedagogy and classroom management on the job through training and mentoring. Others feel pedagogy and classroom management should be a part of licensure coursework and field-based experiences before one can become a teacher of record (Darling-Hammond & Berry, 2006). Many of those concerned with teacher effectiveness wonder how you can require less in terms of preparation, and expect

more in terms of student outcomes (Darling-Hammond, 2006a). Critics of alternative licensure would argue that the least prepared teachers often end up in hard-to-staff schools working with the most needy children. They question the wisdom of placing unprepared teachers in difficult situations that contribute to mobility and attrition (Barnes, Crowe, & Schaefer, 2007; Hanushek, Kain, & Rivkin, 1999; Kauffman, Johnson, Kardos, Liu, & Peske, 2002).

In contrast, Constantine, Player, Silva, Hallgren, Grider, & Deke (2009) found no significant difference in the achievement of students of teachers licensed through alternative routes when compared to students of teachers prepared through traditional programs. According to their findings, additional coursework in theory and pedagogy played no significant role in teacher effectiveness. The only exceptions were with teachers taking courses while teaching. Students of teachers taking courses actually had lower achievement scores than students of those not taking courses. The results of this study are sure to fuel continued debate on the merit of various pathways to teaching.

It should be noted that the focus of the study was on teacher licensure paths and teacher effectiveness. It did not directly address teacher attrition. While the results of the study indicate that teachers who remain in the field may be equally effective regardless of their path to licensure, it did not address the issue of attrition. Producing more teachers may not be the answer if those teachers do not remain in the classroom long enough to develop skills and reach their full potential (Ingersoll, 2001).

Recap of Student Performance

Research in this area is consistent with regard to the following generalizations:

- The single biggest factor influencing student performance is teacher effectiveness.

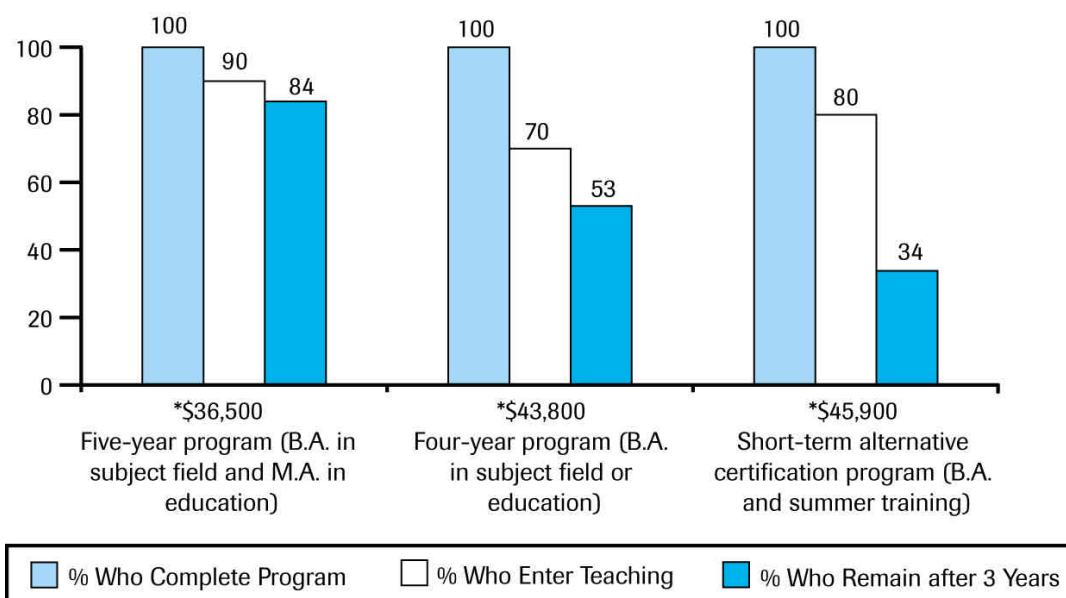
- A typical teacher does not reach full potential for five years.
- Quality preparation and support produce more effective and successful teachers who are more likely to remain in the profession.
- Teacher turnover lowers the effectiveness of the teacher pool, especially in hard-to-staff schools.

Financial Ramifications

Estimates of the cost of teacher attrition or turnover vary widely (Barnes, Crowe & Schaefer, 2007; Hunt & Carroll, 2007). Barnes, Crowe, and Schaefer (2007) list eight cost categories related to turnover. These include: a) recruitment and advertising, b) special incentives, c) administrative processing, d) training for new hires, e) training for first-time teachers, f) training for all teachers, g) learning curve, and h) transfer. Some cost categories relate to movers, some to leavers, and some to both. The costs involved may be reflected in the school or district level budget depending on the activity.

In 2000, the National Commission on Teaching reported that it ultimately costs significantly less to prepare a candidate in an extended 5th year program than it does to prepare candidates in shorter alternative programs because of costs related to turnover (Darling-Hammond, 2000).

Figure 1 shows a cost comparison based on three types of preparation: a) five-year programs, b) four-year programs, and c) short-term alternative programs. Data in Figure 1 reveal that the number of completers actually entering the profession and remaining after three years was highest for those completing a five-year program with 90% entering and 84% remaining after three years. These data translate into an average cost of \$36,500 to prepare each teacher. Seventy percent of those completing a four-year program actually entered the teaching profession and



*Estimated Cost Per Third-Year Teacher. Estimates based on costs of teacher preparation, recruitment, induction, and replacement due to attrition.

Figure 1. *Results of Darling-Hammond's 2000 Cost Analysis Study of Teacher Attrition*

53% remained after three years reflecting an average cost of \$43,800. Of those completing a short-term alternative program, 80% entered the teaching profession; however only 34% remained after three years representing a cost of \$45,900 per teacher. So, while a higher percentage of alternative completers entered the profession than did four-year program completers, significantly fewer remained after three years. Consequently, the average cost per practicing teacher was higher for alternative completers. These cost estimates were based on a number of factors including costs of teacher preparation, recruitment, induction, and replacement due to attrition.

In another analysis of the cost of teacher attrition, Carroll (2007) estimated that individual urban schools spent \$70,000 a year on costs related to teacher transfers, whether they left the district or not. The figure was set at \$33,000 for non-urban schools. District level costs were

estimated to be \$8,700 for each urban teacher that left and \$6,200 for non-urban systems. Based on these school and district level costs, NCTAF estimates the cumulative costs to replace teachers lost by transfer and attrition to be \$7.34 billion (Barnes, Crowe, & Schaefer, 2007). This heavy cost of attrition is a burden on school systems across the country, especially in light of the current economic crisis, and these estimates do not take into account the costs in terms of student achievement.

Recap of Financial Ramifications

- Teacher turnover has a significant financial impact on schools and school systems each year.
- The costs of teacher turnover include more than just preparation. Replacement costs to consider include recruitment and induction costs incurred at both the school and district level.
- The National Council on Teaching and America's Future estimates the annual total costs related to teacher turnover to be \$7.34 billion.

Preparation and Induction

This section contains a review of the literature on preparation and induction and how these experiences may relate to attrition.

Turnover rates are high for a number of reasons and multiple factors may play into a teacher's decision to move or leave the profession. As previously reported, retirement accounts for only about one-third of teachers who leave the profession (Hunt & Carrol, 2003). Marvel, Lyter, Peltola, Strizek, & Morton (2007) reported that a follow-up survey which addressed reasons teachers leave their profession found that 38.1% of the time they left for a better teaching

assignment, 32.7% of the time they left because of working conditions, and 37.2% of the time they left due to a lack of administrative support. Ingersoll (2003) found that working conditions actually play a more significant role than retirement in teachers' decisions to leave their profession. Based on the reasons most commonly listed for leaving, a reasonable question might be: Does the type of preparation and induction program a teacher participates in make a difference?

Teachers with strong academic credentials, including a high undergraduate grade point averages and/or degrees from prestigious colleges or programs, are more likely to leave the profession prior to retirement (DeAngelis & Presley, 2007; Goldhaber, Gross, & Player, 2007). Math and science majors who leave are more likely to take a job outside the field of education (Anderson, 2008). Those with strong education credentials, such as a degree in education, are likely to transfer between schools, but are less likely to leave the profession (DeAngelis & Presley, 2007; Goldhaber, Gross, & Player, 2007; Hampden-Thompson & Herring, 2008).

Interestingly, age appears to play a role in teacher longevity. Sharon Anderson (2008) in a report titled, *Teacher Career Choices: Timing of Teacher Careers Among 1992-93 Bachelor's Degree Recipients*, indicated that older degree recipients were more likely to teach consistently. Results showed that 13-14% of all 1992-93 graduates, in all age groups, had taught by 2003. Among those graduates who taught, older graduates were more likely to have taught on a consistent basis. Those 35 or older in 2003 taught consistently more often than the those in the 33-34 age range and that group (33-34) in turn taught consistently more often than those who were 32 or younger. The report showed that 19% of graduates 32 years old or younger taught

consistently, while 31% of those ages 33 to 34 did so, and 40 percent of those age 35 or older taught consistently.

It is estimated that within the first five years of teaching, as many as half of all new teachers will leave the profession (Hunt & Carroll, 2003). To make matters worse, five years is also the average time it takes teachers to reach their potential (Ingersoll, 2003). New teachers who are unprepared or poorly prepared and unsupported are at the greatest risk of leaving the profession in their first year, particularly if placed in a challenging teaching situation (Alliance for Excellent Education, 2008). Beginning teachers are most likely to be find their class rolls filled with low-performing, at-risk students even though they are the least prepared to meet their needs (Kapadia, Coca, & Easton, 2007; Carroll, 2007).

Alternative licensure programs typically provide less practicum experience than traditional programs, leaving the responsibility to the schools that hire them to provide induction and mentoring (Darling-Hammond & Berry, 2006). Unfortunately, many school systems are not organized enough, structurally or financially, to provide the mentoring and support that is needed. According to Smith and Ingersoll (2004), less than 1% of new teachers received a comprehensive induction. However, those who did were 50% less likely to leave.

A study in Massachusetts (Kauffman, Johnson, Kardos, Liu, & Peske, 2002) revealed that one in five new teachers received no curriculum or direction on what to teach. Half of those who did receive curriculum with topics and skills to be covered were provided no materials or guidance on what and how to teach. Johnson (2004) reported that new teachers placed in low-income schools received significantly less support, and had higher attrition rates than teachers in high-income schools. Research on induction and mentoring programs also indicates that

mentoring support may lower stress levels among new teachers which, in turn, may result in lower attrition rates (Ingersoll & Smith, 2004; Hunt & Carroll, 2002).

Other studies have reported that over time, districts that invest in well-designed induction programs suffer less teacher turnover and higher teacher retention (Kapadia, Coca, & Easton, 2007; Shockley, Guglielmino, & Watlington, 2006). Research also supports the claim that such induction programs are cost effective, returning \$1.66 for every \$1.00 spent (Villar & Strong, 2007).

As teacher shortages have become more acute, some policy advisors have supported the idea that subject matter knowledge measured by a single test along with a background check are all that should be required to become a licensed teacher (Walsh, 2001). As a result, some policymakers are willing to license and allow teachers with little or no preparation in pedagogy to be classified as “highly qualified,” by simply passing a subject matter test.

Several studies refute the idea that a single licensing exam is all that is needed (Center for Teaching Quality, 2006; Darling-Hammond & Berry, 2006). Research indicates that high-quality teacher preparation is important (National Council for Accreditation of Teacher Education, 2006). Well-prepared teachers out-perform those who are unprepared or poorly prepared (Darling-Hammond, 2006b; Fetler, 1999; Goldhaber, 2006). Knowledge of subject matter and pedagogy is an important part of teacher preparation. To be effective, teachers must know their subject but also how to apply strategies to help students reach their potential. Further, they must understand and be able to apply knowledge of child development in order to diagnose and meet the needs of individual students (Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2006; Darling-Hammond, Holtzman, Gatlin, & Heitig, 2005).

A study by Aaronson, Barrow, and Sander (2007) revealed that when considering teacher effectiveness those who are least effective are more likely to turn over or leave the profession than those that are more successful or effective. Further, teachers in the bottom 10% in terms of effectiveness are 13% less likely to remain in their teaching positions the following year.

Goldhaber, Gross, and Player (2007) found that teachers who are successful in raising students' performance are less likely to leave the teaching profession. Further, they are not as likely to leave lower-performing, poorer schools even though that type of environment generally increases the likelihood of teacher attrition. Simply put, successful teachers are less likely to leave teaching and tend to stay in their positions.

The development of a positive learning environment is essential (Darling-Hammond, 2000). Hunt & Carroll's 2003 report *No Dream Denied: A Pledge to America's Children* indicated that hiring well-prepared teachers would reduce first year attrition by 50%. The report describes well-prepared teachers as possessing strong knowledge of content and pedagogy, knowledge of assessment and its use as a diagnostic tool, and the ability to collaborate and reflect on instructional practices to improve instruction.

When comparing teachers with training in pedagogy and those without it, Shen and Palmer (2005) reported that teachers with no training were three times as likely to leave the classroom. In contrast, those who completed a practicum (student teaching or internship), became fully licensed, and took part in some type of induction program were 111% more likely to remain in the classroom than individuals with little or no training. Boe, Bobbitt, & Cook (1997) in a study using *Schools and Staffing Survey* data, found fully certified teachers (trained in content and pedagogy) had much lower attrition rates than those not fully certified.

Darling-Hammond and Baratz-Snowden (2007) found that Teach for America recruits who remained to become fully licensed performed equally as well as other fully licensed teachers; however, the vast majority of them had left teaching by the third year just as their effectiveness increased. As previously shown (Figure 1), teachers prepared through extended or 5th-year teacher education programs continue teaching longer than teachers from traditional four-year programs. Further, they have much higher retention rates than individuals trained in short-term, alternative certification programs suggesting that teachers trained through a year-long internship may feel more comfortable and competent than those whose training included significantly less clinical experience (Darling-Hammond, 2000).

Hunt & Carroll (2003) reported that often K-12 school systems are not designed, organized, or budgeted to provide intensive mentoring and training or to create supportive professional learning communities. Further, where support is lacking, many new recruits, particularly inadequately prepared ones, wind up transferring in search of a more supportive atmosphere or they may leave the profession altogether. As a result of research in this area, efforts are being made to strengthen new teacher mentoring programs as well as to create collaborative learning communities.

Smith and Ingersoll (2004) found that new teachers who were paired with mentors from the same subject area were significantly less likely to leave the profession during the first year. A survey of new teachers sponsored by MetLife found that new teachers who were satisfied with mentoring assignments and who reported a supportive atmosphere in their school were more likely to report that they plan to remain in the profession (Markow & Martin, 2005). However, it

is difficult for schools to provide a stable and supportive atmosphere when 20% of the staff turns over each year (Carroll, 2007).

Teacher preparation programs can and do vary widely in quality. While most are designed to provide a significant measure of support as pre-service teachers participate in field experience, student teaching, or an internship, others are not (Darling-Hammond, 2002). As stated before, research indicates that regardless of the path to licensure, the more training, experience, and support available to pre-service and in-service teachers, the more likely they are to find success and to remain within the teaching profession. Some more progressive programs have embraced the idea of Professional Development Schools or PDS's in which the training of new teachers is more of a partnership between K-12 and Higher Education (Castle, Fox, O'Hanlan, & Souder, 2006; Darling-Hammond, 2006b). Strengthening the link between K-12 and Higher Education in order to provide experiences appropriate for those entering the teaching profession, as well as professional development for those already teaching, may work to lower attrition and turnover (Fleenor & Dahm, 2007; Latham & Vogt, 2007; Ross, 2001). Creating a steady flow of effective teachers that meet the needs of K-12 systems may require P-16 education to evolve into a more integrated and cooperative structure (Darling-Hammond & Baratz-Snowden, 2007).

Recap of Induction and Preparation

Available research indicates that:

- Better teaching assignment, job dissatisfaction, and lack of support were the reasons most often listed by teachers for leaving a teaching position, not retirement.

- Teachers with strong academic credentials, including a high undergraduate grade point average and or graduation from a prestigious college or program, are more likely to leave the profession for reasons other than retirement.
- Those with strong education credentials such as a degree in education are likely to transfer between schools, but not as likely to leave the teaching profession.
- Studies reveal that when considering teacher effectiveness those who are least effective are more likely to turn over or leave the profession than those who are more successful or effective.
- New teachers who are unprepared or poorly prepared and unsupported are more likely to leave the profession in their first year, particularly if teaching in a challenging situation.
- Beginning teachers are most likely to be assigned the most difficult classrooms with low performing at risk students, even though they are the least prepared to meet their needs.
- Teachers who are well prepared are not only more likely to stay in teaching, but also to become part of a professional learning community within their school.
- Teachers with no pedagogical training are much more likely to leave teaching than those with training.

Summary

The review of literature surrounding teacher turnover highlighted a need to clearly define and differentiate attrition, mobility, and turnover in order to facilitate a meaningful discussion of its impact. The available research revealed that teacher turnover in all its forms is high, relative to other professions and that this turnover or churning of teachers exacerbates a number of

problems in K-12 education. With regard to this study, the following three conclusions may be drawn from the literature.

First, teacher effectiveness is linked to experience, and turnover limits the overall experience level of the teacher pool. Consequently, teacher turnover adversely affects student achievement, especially in poor, urban and rural schools where the problem is the highest.

Second, costs related to turnover have a significant impact on school budgets. In fact, working to reduce turnover could result in saving millions, if not billions of dollars annually.

Third, the growing problem of teacher shortages could be mitigated by addressing teacher turnover. Efforts to license more teachers each year have not solved the problem because so many are leaving the field. While the reasons for high teacher turnover are many, one consistent finding has been that successful and effective teachers are more likely to remain in the classroom. According to the literature, producing successful and effective teachers is best achieved through quality preparation and induction programs provide new teachers with support as they enter classrooms across the country.

The findings in this literature review support the need for continued research related to teacher preparation programs and the impact they have on all forms of teacher turnover. The methods chosen to address this study's five research questions outlined in Chapter 1 are detailed in Chapter 3.

CHAPTER 3: METHODOLOGY

Introduction

Topics addressed in this chapter include the purpose of this study and the methodology to be used to answer the research questions posed in Chapter 1. Discussion covers participants, data elements and sources, collection and analysis. Also included are detailed descriptions of how variables were applied to address the five research questions.

The purpose of this study was to compare the employment retention and mobility patterns for the University of Tennessee, Knoxville's fifth year post-baccalaureate intern program with UTK's alternative C licensure program completers employed in Tennessee public schools between 2001 and 2005. Five research questions were posed.

1. What were the employment patterns (employment vs. non employment) of UTK's fifth-year post-baccalaureate completers and alternative C licensure program participants (within Tennessee public schools) between 2001 and 2005?
2. What was the relationship of student academic and program variables including grade point average, Praxis scores, and program type to teacher attrition and mobility during the 2001 – 2005 timeframe?
3. For how many years were participants of each program employed in Tennessee public schools within the five year span (2001 – 2005)?
4. How did participants of the two program types compare in movement between public schools within the state of Tennessee (2001 – 2005)?
5. Did movement reveal patterns of migration toward or away from schools of low socio economic level during the study's timeframe (2001 – 2005)?

Methodology

A case study methodology was chosen for this study. According to Stake (1995) case studies may be used to examine cases of particular interest and to understand them within their particular boundaries. The methodology may be used as a way of studying educational programs and can be used for program evaluation. The selection of methodology was consistent with the study focus and setting. The intent of the research was to compare two specific teacher education program types at one university. Taking into consideration the low number of alternative C subjects relative to fifth year post-baccalaureate program completers during the study timeframe, a case study design was used as described in Robert Yin's *Case Study Research Design and Methods* (2003). Descriptive statistics were applied to data made available by the University of Tennessee, Knoxville's College of Education, Health, and Human Sciences' program in teacher education.

Participants

This study was completed using existing data from the University of Tennessee, Knoxville's College of Education, Health and Human Sciences teacher licensure programs. K-12 classroom teachers were the focus of the study. The study data were limited to graduates of the university licensed for K-12 classrooms who were hired by Tennessee public schools during the 2001–2005 timeframe. It is possible to complete licensure requirements without completing a degree. Specifically, the targeted populations of the study were completers of the University of Tennessee, Knoxville's College of Education, Health and Human Sciences fifth year post-baccalaureate initial licensure program and UTK's state approved alternative C licensure program during the period from 2000-2001 through 2004-2005. Data were available for 883

participants. Eight hundred thirty-six students completed the fifth-year program, and 47 were licensed through the alternative C program. The original list of alternative C program participants contained 161 individuals, however 114 were eliminated from the study for one of three reasons: (1) they received no degree from the University of Tennessee, Knoxville and were not included in the state employment data, (2) they were interns who were hired early (during the internship) and switched from the 5th-year program to the alternative C program, or (3) they were not in a program also represented in the post-baccalaureate fifth year program. A breakdown of participants and the numbers within each cohort group and program type is provided in Table 2.

While other alternative programs were active during this time period, the alternative C program was selected for inclusion in this study because it was by far the largest and the only alternative licensure program in which the college is fully involved. The path to licensure is designed by the college and results in a recommendation for licensure from the college. The other alternative licensure types available at the time of the study include alternative A and alternative E. Alternative A was a state issued license and program where participants, already on a temporary license, come to a college or university for course work only. Likewise, alternative E was another state issued temporary license where individuals take course work only and where the Institution of Higher Education plays no role in recommendation for licensure. Because of the nature of the alternative A and alternative E programs and the small number of students involved, they were not included in the study.

Alternative C applicants must hold at least a bachelors degree and have been hired by a school system to fill a position that would otherwise go unfilled. The applicant comes to the university with a school system request that they be issued a temporary Alternative C teaching

license to use while they complete the requirements for full licensure. Those who are admitted are issued the provisional license once they meet with an advisor to review their academic history and map out a course of study leading to full licensure. The temporary license is good for one year and may be renewed twice. As a full time teacher the applicant takes courses at night, on weekends, and in the summer. The successful completion of the designated course of study, a positive evaluation by the employing school system, and a passing score on the Praxis licensure exams, results in a recommendation for licensure.

Table 2. *Study Participants*

Cohort Year		5 th Year Program	Alternate C
2001	Participants	178	5
2002	Participants	138	5
2003	Participants	163	11
2004	Participants	194	12
2005	Participants	163	12
2001-2005	Total Participants	836	45

The University of Tennessee's 5th-year post-baccalaureate program is one of relatively few across the country. Applicants must have a minimum 2.7 grade point average and an undergraduate degree or have completed between 45 and 75 hours of undergraduate work (depending on the program) before admission. All must complete their degree prior to entering into an unpaid year long internship. Those seeking elementary licensure must complete a minor in elementary education. Those seeking licensure in secondary education programs must complete an undergraduate major in the content area they intend to teach and a minor in secondary education. In the fifth year, these pre-service teachers intern for a complete school year, following the K-12 placement school's calendar from beginning to end. Interns must be admitted to graduate school, as coursework completed during the internship is at the graduate level. Upon completion of the program, interns are approximately 12 hours from completing a master's degree and almost all go on to complete the graduate degree.

The participant pool was limited to only "true" 5th-year intern completers and those in a true Alternative C program. On occasion, 5th-year interns may be hired as teachers of record prior to program completion (early hire), and in doing so they switch from the 5th-year internship program to the Alternative C program. At times those seeking licensure through the Alternative C program may not complete their course of study within the three-year timeframe and transfer to another alternative program. Any students who moved between programs were eliminated from the study. Only those who were admitted and remained in one program or the other were kept in the participant pool.

Data Elements and Sources

Data used for this study include the education, licensure, and employment history of public school teachers with degrees from the University of Tennessee, Knoxville and who were employed in Tennessee public schools between 2001 and 2005. Employment data were supplied to the University's College of Education, Health and Human Sciences by the Tennessee State Department of Education. The data set from the state included information for only those with a degree from the University of Tennessee, Knoxville. The programs included in this study are post-baccalaureate by design, so, while program completion and a licensure recommendation do require an undergraduate degree, it does not necessarily have to be from the University of Tennessee, Knoxville (though most do complete an undergraduate degree from the UTK and/or go on to complete a masters degree). Consequently, program completers with undergraduate degrees from other institutions and who did not go on to complete masters degrees were not included in the data provided by the state.

Grade point averages were available through the University student information system while Praxis scores were on file within the college. All data used for comparison were obtained from existing college records with the exception of the Title I status of schools employing the study population. Title I status is a matter of public record and was accessed through the Tennessee State Department of Education website. No students or employers were contacted or are identified in the study. Appropriate IRB forms were filed and approved.

Data Collection

A list of completers licensed through the College's 5th-year internship program and alternative C program during the 2000-2001 to 2004-2005 timeframe was created from lists of

interns in the teacher licensure program's Office of School Based Experiences and lists of the Alternative C participants from the College advising office. This list was then sorted by social security number and compared to a list of all those University of Tennessee, Knoxville graduates employed in Tennessee public schools during the 2001-2005 timeframe (N=5,346). Employment information from the state included school placements for each year as well as licenses issued to each individual and their effective dates. This information was used to cross-check and validate university student lists by sorting for alternative C and interim D licensures which confirmed program participation. Alternative C program participants are teachers of record and work on a temporary alternative C license while they complete their program requirements. Fifth year interns appear in the state database because they receive credit for pay purposes even though they are not employed and are not the teachers of record. During the internship year they are issued an interim D license while they complete their program. Individuals appearing on the lists were selected and used to create a spreadsheet listing each individual by the year employed or eligible for employment and licensure area/discipline. Disciplines included in the study were: art, elementary, English, foreign language (French, German, Latin, and Spanish), math, science (biology, chemistry, earth science, and physics), social sciences (geography, government, and history), and special education (modified, comprehensive, and deaf and hard of hearing).

Employment information was available for the academic years 2000-2001 through 2005-2006; however, the study is limited to the 2000-2001 through 2004-2005 timeframe because attrition and transfer information was not available for 2005-2006. The employment information available included the district and school assignment for each individual in each of the six school years. The 2005-2006 employment information was only used to identify school placements for

those leaving or transferring at the end of the 2004-2005 school year. Varying amounts of longitudinal information were available for each individual depending on the year she/he completed/entered a program and was hired. A second spreadsheet was created in which teachers were grouped in cohorts based on their first year of eligibility for employment in Tennessee K-12 public schools (2000-2001 through 2004-2005), the program type (alternative or fifth-year), and licensure area.

Employment data for each individual were entered into the spreadsheet reflecting their status for each year. Status was recorded as returning to teach in the same school, transferring to a new school/district, or leaving teaching (in Tennessee public schools). A limitation of the study is that data were available only for Tennessee public school teachers with degrees from the University of Tennessee, Knoxville and only for the timeframe specified. The Title I status of each individual's school placements was also recorded, as well as his/her overall UTK graduate grade point average, and Praxis scores.

Not all fifth year program completers work in Tennessee public schools, nor do they all seek and find employment immediately upon program completion. All Alternative C licensure participants teach while completing licensure requirements, as they must be employed as a teacher in order to enter the program (but not necessarily in public schools). As previously stated, the data available delimits the scope of the study to program completers that are graduates of the University of Tennessee, Knoxville and teaching in public schools in Tennessee between the 2000-2001 and 2004-2005 school years.

Data Analysis

A comparison of program groups was conducted from the perspective of attrition, as well as movement between schools and systems. The comparisons examined how patterns of movement and attrition relate to teacher preparation variables including grade point average, Praxis scores, program type, and licensure area.

Descriptive statistics were used to compare completers of the traditional fifth-year post-baccalaureate program with the alternative licensure program participants in terms of teacher mobility and attrition rates for those teaching in Tennessee public schools. The study also compared grade point averages as well as Praxis scores with attrition and mobility rates for each program type. The available data sources contained varying amounts of longitudinal data for each individual depending on the year of program completion and employment date. Raw numbers and percentages were used to compare attrition and mobility rates for cohorts established by the year of program completion and employment in public schools within Tennessee.

The ability to make comparisons and determine relationships was limited by the size of individual comparison groups. Licensure areas were combined or grouped into disciplines because of small numbers. Foreign language numbers include those licensed in Spanish, French, Latin and German while history, economics, government, and geography were combined as social sciences. Biology, chemistry, earth science, and physics were grouped as science. Despite combining licensure groups into disciplines, no comparisons could be made beyond program type (alternative C and fifth year post-baccalaureate).

Attrition was measured for each year as the number and percentage of each group or cohort not returning to teach in a Tennessee public school and was disaggregated by program type. A multi-year attrition rate for each program group was also calculated for the five-year period. Data related to school placement were utilized to determine the percentage of those returning who transferred between schools from one year to the next. School placements were examined to determine how school SES levels were associated with attrition and or mobility of program completers (fifth-year and alternative C). Specifically, the researcher examined how the percentage of low-SES school placements (as defined by the Title I participation/designation) rose or fell over time by using the initial and final placements of each individual to reveal patterns of migration to or from low SES level schools.

Grade point averages were determined for each cohort group and program type. An overall grade point average was calculated for each program type for the five-year period. Additionally, average Praxis scores were determined for each cohort based on program type and tests taken.

Results of the data analysis have been used to address each research question. Table 3 below lists the study variables and describes how they were applied to address each of the research questions and is followed by a more detailed explanation.

Question 1. What were the employment patterns (employment vs. non-employment) of UTK's fifth-year post-baccalaureate completers and alternative C licensure program participants (within Tennessee public schools) between 2001 and 2005?

This question was addressed by comparing the number and percentage of “leavers” within each program type and cohort. Those not returning to teach in a public school were listed

as “leavers”. Those returning, but not to the same school were considered “movers” and those returning to the same school were considered “stayers”. The researcher also recognized and reported the number and percentage of “leavers” that returned to the workforce in any given year in order to generate an overall attrition rate based on actual loss over time. In other words, the total number of leavers each year does not represent the net loss over the five year period

Table 3. *Variables Applied to Research Questions*

Research Questions	Variables					
	Program Type	Attrition Rates	Mobility Rates	GPA	Praxis Scores	School SES
Question 1.	X	X				
Question 2.	X	X	X	X	X	
Question 3.	X	X				
Question 4.	X		X			
Question 5.	X		X	X	X	X

because a significant number of those leaving in any given year eventually return to the workforce. Results were compared for each year as well as across years within each cohort.

Question 2. What was the relation between student academic and program variables including grade point average, Praxis scores, and program type to teacher attrition and mobility during the years 2001-2005?

To answer this question the researcher computed the average grade point and average Praxis scores of “leavers” and “movers” to look for relationships between the variables. Additionally, the researcher reviewed the data to see if those completing a particular program type (Alt C or fifth-year) tended to leave or transfer at a higher rate.

Question 3. For how many years were participants of each program employed in Tennessee public schools within the five year span (2001-2005)?

In order to answer this question the researcher calculated the average number of years each type of program completer/participant was employed in Tennessee’s public school system during the five-year span. Results were limited by the amount of longitudinal data available for each cohort. For example, those who began teaching in 2000-2001 could have been employed between one and five years within the limitations of the study. In contrast, data for those who began teaching in the 2004-2005 school year would only reflect one year of data.

Question 4. How did participants of the two programs compare in movement between public schools within the state of Tennessee (2001-2005)?

To answer this question the researcher computed mobility rates for each program type by cohort and year looking at both the numbers and percentages transferring each year to another public school within the state of Tennessee.

Question 5. Did movement reveal patterns of migration toward or away from schools of low socioeconomic level during the study timeframe (2001-2005)?

To answer this question the researcher looked for patterns within the migration of groups determined by program type, as well as by examining grade point averages and Praxis scores. By looking at the first and last school placement and the Title I designation of each, the researcher determined the number and percentage of those in each group that moved from a Title I designated school to a non-Title I school and vice versa.

Summary

Chapter 3 provided a description of the methodology used in this study. For clarity, a review of the problem and research questions were included. The study's participants, data sources, collection, and procedures for analysis were addressed as well as how these were applied to each research question. The study findings are reported in Chapter 4.

CHAPTER 4: FINDINGS

Purpose

Better teacher preparation, resulting in more successful teachers who remain committed to teaching as a career, is a goal of all teacher education programs. Teacher licensure programs within the College of Education, Health, and Human Sciences at the University of Tennessee, Knoxville are working to strengthen the knowledge, skills, and dispositions of teacher candidates and promote retention. The purpose of this study was to compare employment retention and mobility patterns for UTK's fifth-year post-baccalaureate intern program with UTK's alternative C licensure program participants employed between 2001 and 2005 in Tennessee public schools.

Sample

The sample consisted of fifth-year, post-baccalaureate program completers and alternative C program participants who were employed in Tennessee public schools between the 2000-2001 and 2004-2005 school years. Participants were divided into five cohorts beginning with the 2000-2001 school year through the 2004-2005 school year. Fifth-year post-baccalaureate completers were placed in cohorts based on the year they were eligible to be hired as teacher of record which is the year following program completion. Those finishing in the spring of 2000 and eligible to be hired as teacher of record in the 2000-2001 school year were placed in cohort one. Likewise, those finishing in subsequent years were placed in the following cohort year. Alternative C participants must be hired as teachers of record in order to enter the program and were placed in cohorts based on the first year of employment.

What follows are the findings of the study as they apply to each individual research question.

Question 1. What were the employment patterns (employment vs. non-employment) of UTK's fifth year post-baccalaureate completers and alternative C licensure program participants (within Tennessee public schools) between 2001 and 2005?

This question was addressed by comparing both the number and percentage of “leavers” within each program type and cohort. Overall attrition rates for cohort one for the fifth-year program and the alternative C program are displayed below in Table 4. Cohort one provided five full years of longitudinal data. Results show that there were 178 fifth-year program completers who finished in 2000 and who were employed in public schools at some point during the five-year timeframe of the study. Of the 178 fifth-year program completers for whom there were employment data, 159 were employed during the 2000-2001 school year. At the end of this first year 19 (11.96%) did not return.

Cohorts within the study were established based on the number of fifth year completers, and alternative C participants that became eligible to teach each year, who were hired as teachers of record at some point during the study timeframe. While all alternative C cohort members must begin teaching in order to enter the program, fifth year completers may not enter the classroom the first year they are eligible.

So while 19 of the 159 employed in 2000-2001 left teaching, the number of fifth-year program completers teaching during the 2001-2002 school year was 148 not 140 (159-19) as one might expect. The number working in any given year is equal to the number returning from the previous year plus any cohort members entering a classroom for the first time plus those returning to the classroom after taking time off. At the end of the 2001-2002 school year 11 (7.34%) of the 148 who were teaching that year did not return the following year.

Table 4. *Annual Attrition Rates for Cohort 1*

Group	Year 1 2000-01	Year 2 2001-02	Year 3 2002-03	Year 4 2003-04	Year 5 2004-05
Fifth year (N = 178)					
Teaching	159	148	142	138	130
Attrition ^a	19	11	11	11	13
Alternative C (N = 5)					
Teaching	5	5	5	4	4
Attrition ^a	0	0	1	0	0
Percentage Attrition ^a					
Fifth year	11.95	7.43	7.75	7.97	10.00
Alternative C	0.00	0.00	20.00	0.00	0.00

Note: A total of 178 fifth-year program completers in cohort one taught at some point during the five-year period. Because teachers move in and out of the workforce, subtracting the attrition number from the number teaching in any given year will not provide the actual number teaching in the following year.

^aTeachers not returning to teach in a Tennessee public school the following year

Data for the 2002-2003 school year revealed that 142 fifth-year completers from the cohort were employed and at the end of the year 11 (7.75%) did not return. The next year, during the 2003-2004 school year, 138 of the fifth-year cohort members were employed and at year's end 11 (7.97%) left teaching. During the 2004-2005 school year 130 of the fifth-year cohort members were teaching. At year's end 13 (10%) did not return to teach in Tennessee public schools the following year.

There were five alternative C program participants in cohort one and at the end of year one (2000-2001), there was no attrition. Again, at the end of year two (2001-2002) there was no attrition. At the conclusion of the third year (2002-2003) one individual or 20.00% left teaching. The four remaining individuals in the alternative C cohort one continued teaching through the end of the study (80%).

Results for cohort two in Table 5 contained four years of longitudinal data for 138 individuals completing the fifth-year program and five that were a part of the alternative C program. During 2001-2002 the first year of employment for cohort two, there were 124 fifth-year program completers teaching in public schools. Seven (5.65%) left at the end of the year. The following year, (2002-2003), there were 126 fifth-year participants teaching, and at year's end eight (6.35%) left teaching. Data from the third year of employment, the 2003-2004 school year, revealed 120 individuals from fifth-year program were teaching. Eleven (9.17%) did not return to a public school classroom the following year. During the 2004-2005 school year 113 members of the fifth-year cohort were teaching in public schools, and at the end of the year 10 (8.85%) left teaching.

Table 5. *Annual Attrition Rates for Cohort 2*

Group	Year 1 2000-01	Year 2 2001-02	Year 3 2002-03	Year 4 2003-04	Year 5 2004-05
Fifth year (N = 138)					
Teaching		124	126	120	113
Attrition ^a		7	8	11	10
Alternative C (N = 5)					
Teaching		5	5	5	4
Attrition ^a		0	0	1	0
Percentage Attrition ^a					
Fifth year		5.65	6.35	9.17	8.85
Alternative C		0.00	0.00	20.00	0.00

Note: A total of 138 fifth-year program completers in cohort two taught at some point during the five-year period. Because teachers move in and out of the workforce, subtracting the attrition number from the number teaching in any given year will not provide the actual number teaching in the following year.

^aTeachers not returning to teach in a Tennessee public school the following year

Cohort two for the alternative C program contained five members. The first-year employment data for this group (2001-2002) revealed all five members were teaching. There was no attrition at the end of the year. Data for the second year (2002-2003) again revealed no attrition. The data for 2003-2004 showed five individuals were teaching and that at the end of the year one (20.00%) did not return the following year. There were four alternative C cohort members teaching in 2004-2005 and all continued to teach the following year (2005-2006).

Three years of employment data were available for cohort three. The attrition data for the cohort are presented in Table 6. There were 163 fifth-year completers in the cohort who taught during the scope of this study and 11 individuals from the alternative C program. During the 2002-2003 school year, the year in which this cohort entered the classroom, 145 fifth-year completers were teaching. At the end of the year, 12 (8.28%) did not return. There were 142 fifth-year completers from the cohort who were teaching in 2003-2004. At the end of the year, 11 (7.75%) completers did not return to a Tennessee public school classroom. During the third and final year (2004-2005), there were 134 fifth-year cohort members teaching including 15 (11.19%) who failed to return the following year.

There were 11 individuals from the alternative C program who were part of cohort three. During the 2002-2003 school year, all 11 participants were teaching and there was no attrition. The next year, at the end of the 2003-2004 school year, two (18.18%) did not return. In the last year of the study, 2004-2005, nine of the 11 alternative C members of cohort three remained. One (11.11%) left teaching at the end of the year.

Cohort four contained 194 individuals from the fifth-year program and 12 from the alternative C program. Attrition data for cohort four are displayed in Table 7.

Table 6. *Annual Attrition Rates for Cohort 3*

Group	Year 1 2000-01	Year 2 2001-02	Year 3 2002-03	Year 4 2003-04	Year 5 2004-05
Fifth year (N = 163)					
Teaching			145	142	134
Attrition ^a			12	11	15
Alternative C (N = 11)					
Teaching			11	11	9
Attrition ^a			0	2	1
Percentage Attrition ^a					
Fifth year			8.28	7.75	11.19
Alternative C			0.00	18.18	11.11

Note: A total of 163 fifth-year program completers in cohort three taught at some point during the five-year period. Because teachers move in and out of the workforce, subtracting the attrition number from the number teaching in any given year will not provide the actual number teaching in the following year.

^aTeachers not returning to teach in a Tennessee public school the following year following year.

Table 7. *Annual Attrition Rates for Cohort 4*

Group	Year 1 2000-01	Year 2 2001-02	Year 3 2002-03	Year 4 2003-04	Year 5 2004-05
Fifth year (N = 194)					
Teaching				171	172
Attrition ^a				16	14
Alternative C (N = 12)					
Teaching				12	11
Attrition ^a				1	1
Percentage Attrition ^a					
Fifth year				9.36	8.14
Alternative C				8.33	9.09

Note: A total of 194 fifth-year program completers in cohort four taught at some point during the five-year period. Because teachers move in and out of the workforce, subtracting the attrition number from the number teaching in any given year will not provide the actual number teaching in the following year.

^aTeachers not returning to teach in a Tennessee public school the following year

There were two years of employment data available for this cohort beginning with the 2003-2004 school year. During the 2003-2004 school year, 171 fifth-year completers were teaching. At the end of the year 16 (9.36%) left the classroom. The following year, 2004-2005, there were 172 fifth-year completers in the cohort who were teaching and of those 14 (8.13%) did not return the following year.

There were 12 cohort four members from the alternative C program teaching in 2003-2004. Only one (8.33%) participant left at the end of the year. Eleven individuals from the alternative C program were teaching the following year (2004-2005) and one or 9.09% did not return the following year.

Attrition rates for cohort five are displayed in Table 8. There was only one year of employment data for cohort five. Cohort five was made up of 163 individuals from the fifth-year program and 12 from the alternative C program. During the 2004-2005 school year, 148 of the fifth-year completers were teaching. At the end of the school year, 18 (12.16%) left teaching. Data for the 12 cohort members from the alternative C program showed no attrition.

Three- and five-year attrition rates were calculated for both the fifth-year and alternative C programs to facilitate comparisons with previous research that frequently targets these milestones. Table 9 provides a breakdown of cohort one by three- and five-year attrition rates and by program type. It is important to recognize that simply adding the percentage of attrition each year will not reflect an overall cohort attrition rate because in any given year there are teachers leaving as well as teachers entering or returning. The number working in any given year is equal to the number returning from the previous year plus any cohort members entering a classroom for the first time plus those returning to the classroom after taking time off.

Table 8. *Attrition Rates for Cohort 5*

Group	Year 1 2000-01	Year 2 2001-02	Year 3 2002-03	Year 4 2003-04	Year 5 2004-05
Fifth year (N = 163)					
Teaching					148
Attrition ^a					18
Alternative C (N = 12)					
Teaching					12
Attrition ^a					0
Percentage Attrition ^a					
Fifth year					12.16
Alternative C					0.00

Note: A total of 163 fifth-year program completers in cohort five taught at some point during the five-year period. Because teachers move in and out of the workforce, subtracting the attrition number from the number teaching in any given year will not provide the actual number teaching in the following year.

^aTeachers not returning to teach in a Tennessee public school the following year

Table 9. *Three and Five Year Attrition Rates for Cohort 1*

Group	Number in cohort	Number returning 2003-04	3 Year attrition rate	Number returning 2005-06	5 Year attrition rate
Fifth year attrition	178	138	22.47	119	33.15
Alternative C attrition	5	4	20.00	4	20.00

The researcher tracked the number of “leavers” from previous years who returned to the workforce in any given year in order to generate an overall attrition rate based on actual loss over time.

Data showed that 142 fifth-year program completers from cohort one were teaching in year three, representing 79.78% of the original cohort. The 130 who were teaching in year five represented 73.03% of the original cohort. The three year attrition rate, calculated using the number returning in year four (138), is 22.47% while the five-year attrition rate is 33.15% based on the number returning for the 2005-2006 school year (119).

With regard to the alternative C program there were five individuals in cohort one. There was no attrition in the first three years for this group. One individual did not return after year five revealing a 20.00% five-year attrition rate.

Three- year attrition rates were calculated for cohorts two and three. Limited data precluded the calculation of five-year or three-year attrition rates for other cohorts. As with cohort one, the three-year attrition rates for cohorts two and three were calculated based on the number returning in year four.

Cohort two had a total of 138 members from the fifth-year program and five from the alternative C program. Three-year attrition rates by program are shown in Table 10. Data showed 106 fifth-year cohort members returning in year four revealing a three-year attrition rate of 23.89%. Data for the alternative C program showed four out of five original cohort members returning in year four and translating to a 20.00% three-year attrition rate.

Cohort three contained 163 members from the fifth-year program and 11 from the alternative C program. Three-year attrition rates by program are displayed below in Table 11. One-hundred twenty-four of the fifth-year completers in cohort three were teaching in year four, resulting in a three-year attrition rate of 23.93%. Data for the alternative C members of cohort three showed that seven of the 11 original members returned in year four, a 36.36% attrition rate for the alternative C program.

The extremely low alternative C cohort numbers made comparisons with the fifth year program completers difficult because small numbers represent a sizable percentage. However, looking across cohort years and combining data for all cohorts based on years of experience resulted in more comparable figures shown in Table 12. While averages for the fifth-year program were relatively stable the averages for the alternative C group varied widely. Comparisons from this perspective showed attrition rates for the fifth-year program participants ranging from a low of 7.48% after year two to a high of 10.00% after year five. In contrast, attrition rates for the alternative C group rose dramatically from 2.22% in year one to 9.38% in year two to 15.79% in year three and then dropped to zero in years four and five.

Table 10. *Three Year Attrition Rates for Cohort 2*

Group	Number in cohort	Number returning year 4	3 Year attrition rate
Fifth year	138	106	23.89
Alternative C	5	4	20.00

Table 11. *Three Year Attrition Rates for Cohort 3*

Group	Number in cohort	Number returning year 4	3 Year attrition rate
Fifth year	163	124	23.93
Alternative C	11	7	36.36

Table 12. *Attrition Based on Years of Experience*

Program		1st Yr	2nd Yr	3rd Yr	4th Yr	5th Yr
5th Yr	# Teaching	747	588	396	251	130
	# Attrition	72	44	37	21	13
	% Attrition	9.64	7.48	9.34	8.37	10.00
Alt C	# Teaching	45	32	19	8	4
	# Attrition	1	3	3	0	0
	% Attrition	2.22	9.38	15.79	0.00	0.00

Note: Because teachers move in and out of the workforce, subtracting the attrition number from the number teaching in any given year will not provide the actual number teaching in the following year.

Combining data for cohorts one, two, and three by years of experience revealed that three-year attrition rates for the fifth-year and alternative C groups were fairly close. The combined groups contained 21 alternative C participants; 16 of whom returned to teach a fourth year. The combined fifth-year data included 479 participants, 370 of whom returned to teach a fourth year. These data reflect a 23.81% three-year attrition rate for the alternative C group and a 22.76% three-year attrition rate for the fifth-year group.

Question 2. What was the relationship between student academic and program variables including grade point average, Praxis scores, and program type to teacher attrition and mobility during the 2001-2005 time period?

To answer this question the researcher computed the average grade point average and average Praxis scores of leavers, movers, and stayers to look for relationships between the variables. Additionally, the researcher checked to see if those completing a particular program type (alternative C or fifth-year) had comparable grade point averages, Praxis scores and attrition/transfer rates. The grade point average and test score averages for leavers from each program type are presented in Tables 13 and 14.

The fact that employment data were longitudinal made determining leavers and movers complex. Across the study's timeframe any particular individual may leave, return, or transfer. In fact, it was possible for an individual to represent multiple instances of attrition, transfer, or both. For the purpose of answering this question, cohorts were combined and participants who left teaching at any time regardless of whether they returned or not were labeled as leavers. Those who transferred at any time during the study were labeled as movers, and those who did not

Table 13. *Average GPA for Leavers*

Group	Number	GPA
Fifth Year	185	3.86
Alternative C	8	3.45

Table 14. *Average Praxis II Scores for Leavers*

Group	Number test takers	Average score
Fifth Year		
PLT 522	118	178
PLT 523	5	170
PLT 524	53	176
Alternative C		
PLT 522	3	180
PLT 523	1	176
PLT 524	3	172

Note: PLT 522, PLT 523 and PLT 524 refer to required Praxis tests on Principles of Learning and Teaching for grade levels K-6, 5-9, and 7-12 respectively.

leave or transfer were labeled stayers. Individuals who were both a leaver and a mover were designated as a leaver.

There were 836 individuals, across all cohorts, who were products of the fifth-year post-baccalaureate program. Of that number, 185 left the classroom at some point during the study's timeframe (fifth-year leavers). The average GPA for fifth-year leavers was 3.86. There were 45 participants from the alternative C program who were part of the study. Eight of the 45 cohort members left teaching at some point (alternative C leavers) during the study's timeframe. The average GPA for the alternative C leavers was 3.45 which was somewhat lower than the fifth-year program leavers.

Praxis score averages were computed for each group on the Praxis II, Principles of Learning and Teaching (PLT) tests. Prospective teachers are required to take one of four Praxis II PLT exams depending on the type of licensure (grade levels) they seek. Those test codes are the PLT 522 for K-6, PLT 523 for 5-9, and PLT 524 for 7-12. There were nine individuals from the fifth-year program and eight from the alternative C program for which PLT test scores were not available.

PLT 522 (K-6) was the test taken most frequently. Data showed scores for 118 fifth-year cohort members. In Tennessee, the passing score for this test was 155 out of 200. The average score for the fifth-year leavers group was 178. There were only three alternative C program leavers who took the PLT 522 test. They averaged 180 on the exam. Only five fifth-year leavers and one alternative C program leaver took the PLT 523 exam. The state's passing score for the PLT 523 exam was 154.

The fifth-year leavers taking the test averaged 170 while the one alternative C leaver scored 180. The data included scores for 53 individual fifth-year leavers and for three alternative C leavers on the PLT 524 exam. The state's required passing score for the PLT 524 exam was 159. The average score for fifth-year program leavers was 176 while the average score for the three alternative C program leavers was 172.

The average GPA and Praxis score for movers from each program type are presented in Tables 15 and 16. Across all cohorts there were 836 individuals from the fifth-year post-baccalaureate program. Of those, 172 (20.57%) transferred or changed schools (movers) at some point during the study. The GPA for fifth-year completers who transferred was 3.85. The alternative C program had 45 individual members across all cohorts, 17 (37.78%) of whom transferred or changed schools at some point during the study. The average GPA of 3.64 among alternative C program members was somewhat lower than movers from the fifth-year program.

Average Praxis II scores for these two groups were very close. There were 130 fifth-year completers who took the PLT 522 exam with an average score of 175. There were six alternative C participants who took the PLT 522 test yielding an average score of 173. The average score among the three members from the fifth-year program who took the PLT 523 was 175. There were no alternative C program participants who took the 523 exam. The PLT 524 exam was taken by 33 individuals from the fifth-year program. The average score for the fifth year group was 179. The alternative C program had seven individuals take the PLT 524 exam, and the average score for the group was also 179.

Table 15. *GPA for Movers*

Group	Number	GPA
Fifth Year	172	3.85
Alternative C	17	3.64

Table 16. *Praxis Scores for Movers*

Group	Number test takers	Average score
Fifth Year		
PLT 522	130	175
PLT 523	3	175
PLT 534	33	179
Alternative C		
PLT 522	6	173
PLT 523	0	0
PLT 524	7	179

GPA and Praxis scores for stayers (those not moving or leaving) are displayed in Tables 17 and 18. Of the 836 fifth-year program completers who were included in the study, 479 did not leave or transfer during the five-year span of the study. The average GPA for the 479 fifth-year program completers who did not leave or move during the study was 3.86. The average GPA of the 20 individuals from the Alternative C program who did not leave or transfer was somewhat lower at 3.50.

Praxis scores for the fifth-year stayers were slightly higher than for the Alternative C stayers. There were 306 stayers in the fifth-year group that took the Praxis PLT 522 exam and the average score was 177. The eight stayers from the alternative C group averaged 175. On the PLT 523 exam, the 11 individuals from the fifth-year group averaged 170 while the two alternative C test takers averaged 157. The results for stayers taking the Praxis PLT 524 revealed that the 141 fifth-year completers earned an average score of 176 while the seven alternative C program test takers earned an average score of 173.

Table 17. *GPA for Stayers*

Group	Number	GPA
Fifth Year	479	3.86
Alternative C	20	3.50

Table 18. *Praxis Scores for Stayers*

Group	Number test takers	Average Score
Fifth Year		
PLT 522	306	177
PLT 523	11	170
PLT 524	141	176
Alternative C		
PLT 522	8	175
PLT 523	2	157
PLT 524	7	173

Question 3. For how many years were participants of each program employed in Tennessee public schools within the five-year span (2001-2005)?

In order to answer this question, the researcher calculated the average number of years each type of program completer was employed in Tennessee's public school system during the five-year span. The breakdown of employment by program type for each cohort is presented in Table 19. Results were limited by the amount of longitudinal data available for each cohort. Again, those who began teaching in 2000-2001 had five years of data available within the limitations of the study. In contrast, those who began teaching in the 2004-2005 school year only

Table 19. *Cohort Members Employment 2000-01 through 2004-05*

Group	Program	Number	Average years employed
Cohort 1	Fifth Year	178	4.03
	Alternative C	5	4.60
Cohort 2	Fifth Year	138	3.51
	Alternative C	5	3.80
Cohort 3	Fifth Year	157	2.68
	Alternative C	11	2.80
Cohort 4	Fifth Year	188	1.82
	Alternative C	12	1.90

had one year of data available. It should be noted that the small numbers of participants in the alternative C cohorts limits the value of these comparisons.

Cohort one, which began teaching in the 2000-2001 school year, contained 178 fifth-year program completers and five alternative C participants who were employed in public schools during at least one of the five years of the study. On average the fifth-year completers within the cohort worked 4.03 years. The average number of years fifth-year completers were employed varied. The shortest length of employment in the cohort was two years while the longest was five years. Cohort one contained five individuals who were part of the alternative C licensure program. These individuals were in the classroom an average of 4.6 years. The length of employment for this group ranged from four to five years.

Cohort two, which began teaching in the 2002-2003 school year and ended with the 2004-2005 school year, contained 143 individuals. One-hundred thirty-eight were part of the fifth-year post-baccalaureate program and five were part of the alternative C program. On average, the 137 fifth-year post-baccalaureate program completers were in the classroom a total of 3.51 years during the study, while the five alternative program participants remained for an average of 3.80 years. Because members of cohort two were hired in the fall of 2002 the results reflect four years of employment data.

Cohort three data reflects employment history for the 2002-2003 through 2004-2005 school years. The 157 fifth-year participants in this cohort averaged 2.68 years in the classroom during the three year period, while the 11 alternative C participants averaged 2.8 years.

Data for cohort four contained two years of employment information. There were 188 fifth year completers in the cohort who were employed an average of 1.82 years and 12 alternative C program members who were employed an average of 1.9 years.

Question 4. How did participants of the two programs compare in movement between public schools within the state of Tennessee during the five-year period?

To answer this question, the researcher computed mobility rates for each program type by cohort and year focusing on both the numbers and percentages of participants transferring or moving each year to another public school within the state of Tennessee. The average percentage of participants transferring or moving in most years was substantially higher for alternative C program participants. Tables 20 through 24 provide mobility rates by cohort and year for both program types.

In only three instances among the 15 cohort comparisons was the percentage of alternative transfers less than that of fifth-year completers for a given year. There were 45 alternative C participants across all cohorts, and over the five-year study there were 24 transfers made by 17 individuals. Based on those numbers 37.78% of the alternative C participants transferred one or more times. By comparison there were a total of 836 fifth-year completers across all cohorts with 172 individuals who transferred a total of 233 times. Based on those figures, 20.57% of fifth-year completers transferred one or more times over the course of the study, revealing that they were about half as likely to transfer. When combining data based on years of experience without regard to cohort, the alternative C group had much higher transfer rates in all five years of the study. These data are shown in Table 25. It should be noted that the difference in numbers between comparison groups limits the value of the comparisons.

Table 20. *Cohort One Transfer Rates*

Group	Year 1 2000-01	Year 2 2001-02	Year 3 2002-03	Year 4 2003-04	Year 5 2004-05
Fifth year					
Teaching	159	148	142	138	130
Transfer number	28	12	8	10	8
Transfer percent	17.61	8.11	5.63	7.25	6.15
Alternative C					
Teaching	5	5	5	4	4
Transfer number	2	2	1	1	1
Transfer percent	40.00	40.00	20.00	25.00	25.00

Note: There were 178 fifth-year program completers and five alternative C program participants in cohort one.

Table 21. *Cohort Two Transfer Rates*

Group	Year 1 2000-01	Year 2 2001-02	Year 3 2002-03	Year 4 2003-04	Year 5 2004-05
Fifth year					
Teaching		124	126	120	113
Transfer number		22	12	6	9
Transfer percent		17.74	9.52	5.00	7.96
Alternative C					
Teaching		5	5	5	4
Transfer number		1	0	1	0
Transfer percent		20.00	0.00	20.00	0.00

Note: There were 138 fifth-year program completers and five alternative C program participants in cohort two.

Table 22. *Cohort Three Transfer Rates*

Group	Year 1 2000-01	Year 2 2001-02	Year 3 2002-03	Year 4 2003-04	Year 5 2004-05
Fifth year					
Teaching			145	142	134
Transfer number			16	16	10
Transfer percent			11.03	11.27	7.46
Alternative C					
Teaching			11	11	9
Transfer number			3	1	2
Transfer percent			27.27	9.09	22.22

Note: There were 163fifth-year program completers and 11 alternative C program participants in cohort three.

Table 23. *Cohort Four Transfer Rates*

Group	Year 1 2000-01	Year 2 2001-02	Year 3 2002-03	Year 4 2003-04	Year 5 2004-05
Fifth year					
Teaching				171	172
Transfer number				25	24
Transfer percent				14.62	13.95
Alternative C					
Teaching				12	11
Transfer number				2	4
Transfer percent				16.67	36.36

Note: There were 194 fifth-year program completers and 12 alternative C program participants in cohort three.

Table 24. *Cohort Five Transfer Rates*

Group	Year 1 2000-01	Year 2 2001-02	Year 3 2002-03	Year 4 2003-04	Year 5 2004-05
Fifth year					
Teaching					148
Transfer number					27
Transfer percent					18.24
Alternative C					
Teaching					12
Transfer number					3
Transfer percent					25.00

Note: There were 163 fifth-year program completers and 12 alternative C program participants in cohort three.

Table 25. *Attrition Based on Years of Experience*

Program		1st Yr	2nd Yr	3rd Yr	4th Yr	5th Yr
5th Yr	# Teaching	747	588	396	251	130
	# Transfers	118	64	24	19	8
	% Transfers	15.80	10.88	6.06	7.57	6.15
Alt C	# Teaching	45	32	19	8	4
	# Transfers	11	7	4	1	1
	% Transfers	24.44	21.88	21.05	12.50	25.00

Question 5. Did movement reveal patterns of migration toward or away from schools of low socioeconomic level during the study's timeframe (2001-2005)?

To answer this question the researcher looked for patterns within the migration of groups determined by program type, grade point average, and Praxis scores. By looking at the first and last school placement and the Title I designation of each, the researcher determined the number and percentage of those in each group who moved from a Title I designated school to a Non-Title I school and vice versa. Table 26 shows the number of participants within each category by years of experience and broken down by fifth-year and alternative C program status.

Table 26. *First and Last Title I Designations*

Placement status	Program type	5 years exp	4 Years	3 Years	2 Years	Totals
1. Non-Title I to Non-Title I	5 th Year	122	78	102	134	436
	Alt C	5	7	8	14	34
2. Non-Title I-Title I	5 th Year	17	14	11	11	53
	Alt C	3	1	0	0	4
3. Title I-Title I	5 th Year	49	36	56	48	189
	Alt C	0	0	0	2	2
4. Title I-Non-Title I	5 th Year	3	6	12	4	25
	Alt C	0	0	3	0	3
Totals	5 th Year	191	134	181	197	703
	Alt C	8	8	11	16	43

While there were 836 fifth-year program completers in the study, there were 703 with multi-year placements that allowed a comparison of school placement and Title I status. Table 26 clearly shows that most movement in both groups was from non-title I schools to non-title I schools and the second highest type of movement was from one title I school to another. The results in Table 26 were based on the Title I designation of the initial and final school placement of each individual. At first, it appeared that twice as many individuals moved to Title I schools (group 2, N=57) than away from them (group 4, N=28). However, upon closer inspection, it became evident that in a significant number of cases what appeared to be movement from a Title I school to a Non-Title I school was actually a change in school status, not actual movement of teachers between schools. Table 27 contains, by program type, the number of participants who physically changed schools compared to the number who remained in a school that had a change in Title I status. When considering only those who physically changed schools, overall results in Table 27 still show more individuals moving to Title I schools (group 1, N=30) than away from them (group 3, N=28). In no case did a schools' designation change from a Title I status to a Non-Title I status.

The average GPA for each group by Title I category and program type was calculated. Because of the low numbers of alternative C participants who changed (< 5), their numbers shown in tables 28 and 29 will not be discussed separately from 5th year participants. Table 28 shows the average GPA by category and years of experience as well as a total across all years. Considering that the differences were so small and that the GPA's were well above 3.0, comparisons appear almost meaningless.

Table 27. *Teacher Movement VS Change in School Title I Status*

Placement status	Program type	5 Years exp.	4 Years	3 Years	2 Years	Totals
2a. Non-Title I to Title I	5 th Year	4	9	6	9	28
<i>Change of school</i>	Alt C	1	1	0	0	2
2b. Non-Title I to Title I	5 th Year	13	5	5	2	25
<i>No change of school</i>	Alt C	2	0	0	0	2
4a. Title I to Non-Title I	5 th Year	3	6	12	4	25
<i>Change of school</i>	Alt C	0	0	3	0	3
4b .Title I to Non-Title I	5 th Year	0	0	0	0	0
<i>No change of school</i>	Alt C	0	0	0	0	0

Table 28. *GPA by Teacher Placement (Title I vs.Non-title I)*

Placement status	Program type	5 Years	4 Years	3 Years	2 Years	Totals
1.Non Title I-Non-Title I	5 th Year	3.86	3.88	3.87	3.85	3.86
	Alt C	3.62	3.63	3.27	3.56	3.52
2.Non-Title I-Title I	5 th Year	3.63	3.89	3.92	3.75	3.78
	Alt C	3.51	4.00	n/a	n/a	3.63
3.Title I-Title I	5 th Year	3.82	3.90	3.88	3.95	3.89
	Alt C	n/a	n/a	n/a	3.59	3.59
4.Title I-Non-Title I	5 th Year	3.84	3.71	3.81	3.94	3.81
	Alt C	n/a	n/a	4.00	n/a	4.00

Note: The number of participants within each group is displayed in Table 28. The numbers used to generate the alternative C averages are relatively small and preclude meaningful comparisons.

Average Praxis PLT scores for test numbers 522, 523, and 524 were also calculated. The results were broken out by test number, Title I category, and program type. Table 29 provides the number of teachers taking each test and the average scores across all ranges of experience.

Table 29. *Average Praxis PLT Scores by Teacher Placement (School Title I Status)*

Test Group	Number 5 th Yr	Ave Score	Number Alt C	Ave Score
Non-Title I - Non Title I				
PLT 522	248	177	12	172
PLT 523	12	173	7	172
PLT 524	163	177	8	178
Non-Title I - Title I				
PLT 522	35	176	3	179
PLT 523	0		0	
PLT 524	15	172	1	164
Title I - Title I				
PLT 522	163	178	1	181
PLT 523	2	167	1	159
PLT 524	9	173	0	
Title I - Non-Title I				
PLT 522	23	176	0	
PLT 523	0		1	176
PLT 524	2	167	0	

CHAPTER V: CONCLUSIONS, DISCUSSION and RECOMMENDATIONS

Introduction

The purpose of this study was to compare employment retention and mobility patterns for teachers who completed UTK's fifth-year post-baccalaureate intern program with those from the UTK alternative licensure program employed between 2001 and 2005 in Tennessee public schools. The findings of the study were presented in chapter four. Conclusions drawn from the results presented in Chapter 4 have been grouped by research question and are discussed below.

Conclusions

Question 1. What were the employment patterns (employment vs. non-employment) of UTK's fifth-year post-baccalaureate completers and alternative C licensure program participants (within Tennessee public schools) between 2001 and 2005?

Conclusion 1. The data for all cohorts and program types in the study revealed that, on average, first-year attrition rates were higher for fifth-year program completers than for alternative C participants while the reverse is true across all cohorts in year three.

The average first-year attrition rate for fifth-year completers across all cohorts was 9.64% while the comparable average rate for the alternative C group was 2.22%. These figures were in stark contrast to the first-year attrition rates for new teachers reported the U.S. Department of Education in a Schools and Staffing Survey. That survey showed a 19.6% attrition rate for first-year teachers (no experience) during the 2004-2005 school year (U.S. Department of Education, National Center for Education Statistics, 2005). However, the discrepancy in group sizes in this study may make the results somewhat misleading.

When comparing alternative C and fifth-year attrition rates on a year-by-year basis, there were dramatic differences in year 1 and year 3, however, when comparing the percentage loss over three years there was very little difference. The three-year attrition rate for the alternative C group was 23.81% while the three-year rate for the fifth-year group was 23.17%. The three-year attrition rate for fifth-year completers in this study is similar to that reported by the National Commission on Teaching (Linda Darling-Hammond, 2000). However, the three-year attrition rate for the alternative C group in this study (23.81%) is very different from the rate reported for the alternative group her study (66%).

Conclusion 2. While fifth-year leavers often returned to the classroom, alternative C leavers were less likely to return.

Fifth-year participants were about as likely to leave or return in one year as another. While alternative C group members were least likely to leave at the end of year one and most likely to leave after year three, data showed none of them returned once they left the classroom.

Question 2. What was the relationship between student academic and program variables including grade point average, Praxis scores, and program type to teacher attrition and mobility during the 2001 – 2005 timeframe?

Conclusion 1. Alternative C participants had a lower attrition rate than fifth-year program completers during the study's timeframe. However, as is true throughout these discussions, the enormous disparity in numbers of fifth-year completers and alternative C participants must be considered. The impact of actions of a single alternative C participant in most cases can only be balanced by similar action of a significant number of fifth-year completers.

Conclusion 2. Data showed the mobility rates for alternative C group were much higher than fifth-year completers. This finding may support the findings of Loeb, Darling-Hammond & Luczak (2005) who reported that poor preparation was one of four major factors that influence mobility rates. (This study did not compare elements of preparation programs and their effect on mobility.)

Conclusion 3. There was no substantial difference in grade point average or Praxis score averages when comparing fifth-year leavers, fifth-year movers and fifth-year stayers.

Conclusion 4. There was no substantial difference in grade point average or Praxis score averages when comparing alternative C leavers, alternative C movers, and C stayers.

Conclusion 5. Grade point averages were slightly different when comparing fifth-year and alternative C groups. Whether considering leavers, movers, or stayers, the alternative C group had lower grade point averages than the fifth-year group. While the difference is consistent across all program groups, participants in both programs had relatively high grade point averages. It cannot be said that one group or the other was academically inferior.

Conclusion 6. There was no substantial difference in Praxis scores when comparing groups within or across program types. It may be worth noting that while all those licensed in Tennessee must pass the Praxis prior to full licensure, scores were not available for all study participants. Because alternative C program participants may begin teaching prior to taking the Praxis it is possible for individuals to enter and leave the program without taking the Praxis exam at all. Because of the low numbers involved in this group, missing scores may have affected the group average.

Question 3. For how many years were participants of each program employed in Tennessee public schools within the five year span (2001 – 2005)?

Conclusion. When comparing the average number of years of employment on a cohort-by-cohort basis, the alternative C group had a slightly longer average tenure for each cohort than fifth-year completers.

This would appear to be at odds with the findings of the National Commission on Teaching as reported by Linda Darling-Hammond (2000). That 2000 report showed 84% of those completing a five-year program remained after three years while only 34% of those completing a short-term alternative program remained. While the difference is worth noting, direct comparisons are problematic. Two things must be noted: a) the number of alternative C participants involved in this study was small and b) the structure and quality of “short-term alternative programs” vary widely across the country.

While data were available by discipline, the low number of participants within disciplines, rendered comparisons beyond program type impossible. The lower overall attrition rate for alternative C participants is reflected in the longer average length of employment (during the timeframe of the study) compared to fifth-year program participants.

Question 4. How did participants in the two programs compare in movement between public schools within the state of Tennessee (2001 – 2005)?

Conclusion. As a group, the alternative C participants were more likely to transfer or change schools than those completing the fifth-year program.

When combining employment data for all cohorts based on years of experience, first-year alternative C participants had a 24.44% transfer rate while the fifth-year group’s rate was

15.80%. In their second year the alternative C group had a 21.88% rate of transfer compared to 10.88% for the fifth-year program. In the third year of employment the transfer rates were 21.05% and 6.06% respectively. In years four and five the rates for alternative C participants were 12.50% and 25.00% while the rates of transfer for the fifth-year group were 7.57% and 6.15% respectively. In every case, when comparing the program types across cohorts by years of experience, the alternative C group was much more likely to transfer in any given year. Data showed the alternative C participants were a much more mobile group.

In general, the fifth-year program transfer rates were highest in the first year and were lower each subsequent year with the exception of year four. Transfer rates for the alternative C participants remained above 20% in all but year four. Ingersoll (2003) reported that approximately 7 to 8% of all public teachers move each year. Results of this study show fifth-year completers trending below that level, while alternative C participants remained significantly above the 7 to 8% average rate reported by Ingersoll. Again, it must be pointed out that low numbers in the alternative C group greatly influence percentages.

Question 5. Did movement reveal patterns of migration toward or away from schools of low socioeconomic level during the study's timeframe (2001-2005)?

Conclusion 1. The data showed that in both the fifth-year and alternative C programs, an overwhelming majority of participants did not move to or away from low socioeconomic schools as defined by Title I status.

Over 88% (661 out of 746) of the study participants had no change in the Title I status of their initial and final placements during the study timeframe. The greatest movement took place within categories (i.e. from non-Title I to non-Title I schools or Title I to Title I schools).

Conclusion 2. While there was some individual movement in both directions (toward and away from Title I schools), data revealed transfers out of Title I schools were balanced by transfers into Title I schools for both fifth year and alternative C participants. There did not appear to be any flight from or movement toward low socioeconomic status schools based on Title I designation.

Discussion

Data from this study show that patterns of attrition for the alternative C program participants and the fifth-year program participants were very different. Alternative C teachers had a very low first-year attrition rate of 2.22% which increased to 9.38% in year two and to 15.79% in year three before dropping to zero in year four. While the study data do not reveal the reasons behind the differences, a number of factors may have played a role. Alternative C participants are teachers of record while completing licensure requirements. They are issued a one-year temporary license which may be renewed twice, as long as they meet program course requirements and have a positive recommendation from their school system. In order to continue in the program they must teach and take coursework. This may, in part, account for the fact that alternative C teachers were less likely to leave and that those who did leave were not likely to return in subsequent years.

Typically, teachers licensed through the alternative C program were hired in high needs subject areas for positions the system had been unable to fill. Principals who hired these inexperienced teachers may have been inclined to give them the benefit of the doubt in their first-year evaluations. However, without significant improvement, by the end of the second year they may not have been as inclined to do so. Coursework requirements and higher expectations in the

classroom may have contributed to the higher second-year attrition rate. By the end of the third year of employment, additional factors come into play. Program participants could no longer renew the temporary alternative C license and by that time must have finished their program coursework, passed the Praxis, and qualified for an apprentice license. Also, principals must evaluate and grant third-year teachers tenure, should they decide to rehire them for a fourth year. These factors may have played a role in the steep rise in attrition for this group in year three. Past that point, with their program complete, and tenure granted, it seems reasonable that year-four attrition drops dramatically. Those choosing to teach a fourth year demonstrate a commitment to teaching and are relatively protected by tenure laws. All of which may be reflected in zero attrition at the end of year four.

The relatively stable eight to nine percent attrition rate for fifth-year program completers may be linked to several factors. First, the fifth-year group had more classroom experience prior to taking their teaching assignment. Second, while they did have to receive a positive evaluation and be rehired each year, they did not have the added pressure of completing coursework while establishing their professional career. Third, because they had completed their program and were working under a more permanent apprentice license, the fifth-year group was free to move in and out of the workforce without issues related to program completion or licensure retention. As a result, this group may have been more likely to take a year or two of leave for family or other reasons and then return to the classroom.

A comparison of mobility rates showed the alternative C participants to be a more mobile group. Reasons for the difference are unclear. Because alternative C program participants are typically hired in high need disciplines or subject areas, it is possible that they are hired to serve

in more difficult and stressful situations. Consequently, they may be more likely to seek better working conditions through transfer or a change of schools. It may be that the program structure contributes to the higher mobility rates by placing inexperienced teachers with little formal training and too little support in untenable situations. The fact that they were, for the most part, teaching in high needs, high demand areas, may have resulted in more opportunity for transfers by alternative C group members. Considering these possible contributing factors, perhaps it should come as no surprise that, as a group, alternative C participants were more mobile. Further, the high mobility rates of alternative C participants are in line with other studies that report poor retention rates for teachers licensed through alternative certification programs (Andrew & Schwab, 1995; Darling-Hammond, 2000; Hunt & Carroll, 2002).

Data related to movement of teachers to and from schools of low socioeconomic status appear to be at odds with the trends in current literature that report higher turnover rates in low income schools resulting in lower performing schools (Darling-Hammond & Sykes, 2003; Haycock, 1998; Carroll, 2007). While the alternative C program was designed to help meet the needs of schools with hard-to-fill positions, it is interesting to note that only 11.63% of those participants began teaching in a Title I school. By comparison, over 28% of fifth-year completers began their careers in schools designated as Title I. While there was individual movement in both directions, data revealed that movement toward was balanced by movement away from lower socioeconomic schools as defined by Title I status.

Recommendations

Considering that both classroom experience and teacher turnover have a direct connection to student achievement, a number of recommendations can be made with regard to this study and related future research.

1. This study was limited by the data available. Future studies of UTK program completers should include data for all those licensed through the alternative and fifth-year programs regardless of whether or not they actually received a degree from the University of Tennessee, Knoxville. (While individuals must have a degree to meet licensure requirements, and most program participants do complete a degree, it is possible, with a degree from another institution, to meet licensure requirements without receiving a UTK degree).
2. Future research regarding UTK graduates should extend the timeframe to allow larger group comparisons. Larger numbers of participants might allow comparisons by discipline. Alternative groupings should include a look at attrition and transfer rates for alternative completers that have finished their program and become fully licensed.
3. Understanding the reasons for attrition and transfer rates via follow-up surveys and/or interviews with participants to ascertain the individual reasons behind attrition and transfers would be a logical next step for future research.
4. Working on the premise that successful teachers are the most likely to remain in the profession, it makes sense to include student outcomes as a component in future studies. Ultimately, being able to tap into student achievement data through the state database as another point of comparison is critical in tying program participation to student

outcomes. The evaluation of teachers and licensure programs that produce them is quickly moving toward outcomes based assessments. Expanding research into these areas would allow for a more in depth analysis of UT teacher preparation programs.

5. In a broader context, future research comparing the retention rates of those completing UTK preparation programs with data from other fifth-year and alternative programs across the country would provide another measure of program success while adding to the body of research in this area.

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