To my husband Bill
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A PROFILE OF SPECIAL EDUCATION TEACHERS: WHO STAYS?

By
Melissa R. Dunn

August 2010

Chair: David M. Quinn
Cochair: Jean B. Crockett
Major: Educational Leadership

The purpose of this study was to understand more about the characteristics of special education teachers who are retained in a large urban school district. Although teacher shortages and teacher retention have been subjects of research for some time, much has changed in recent years regarding who is entering the field and how they are becoming qualified to teach. The demographic of the teaching force is changing dramatically with an increasing number of men, minority candidates, and mid-career changers taking advantage of alternative certification route programs that allow them to begin teaching and complete certification requirements simultaneously. Given the significant impact that teachers have on student achievement, research into who is teaching, how they are prepared, and whether they stay has added importance.

This study utilized survival analysis methodology to examine teacher retention behavior over a period of six years within the context of their varying teaching assignments in a large urban district. The study attempted to identify significant predictor variables that would indicate which teacher characteristics might signify a greater likelihood of the teacher staying in teaching. An analysis of the of the level and
type of teacher preparation revealed that the teachers who stayed in teaching and the teachers who left teaching did not differ significantly with regard to their teacher preparation. The finding that the risk for leaving teaching did not differ significantly for teachers with special education training is not consistent with other research, which has found that more extensive preparation in special education is associated with higher retention, demonstrating the need for continued research.

The survival analysis provided statistics consistent with current research regarding retention. The findings indicated a 71% probability that teachers would survive through their first year and a 44% probability of surviving through their third year. By their sixth year, a little more than a third of the teachers were expected to still be teaching. A variable of interest that arose during the process of analyzing the data was job change. Among the sample teachers who changed job assignments, the retention was twice as high as that of the teachers who stayed in the same assignment. The study discusses the importance of supportive hiring practices and working conditions for special education teachers.
CHAPTER 1
INTRODUCTION

Many states across the United States are facing serious budget challenges, which result in education programs competing with other essential programs for adequate funding. Considering the billions of dollars that are spent on recruitment, training, and retention efforts every year we must focus attention on ways to address chronic teacher shortages. Why do some teachers stay and some leave?

This research study explored relationships that exist between special education teacher characteristics, teacher preparation, teaching assignments, school assignments, and retention.

Teacher Shortages

Teacher shortages exist in varying degrees and types throughout the nation. Research has also demonstrated that the supply of teachers differs in both quality and quantity according to geographic location, socioeconomic factors, and subject area (Council of the Great City Schools, 2000; Ingersoll, 2003; Murphy, DeArmond, & Guin, 2003). There has been a pattern of steadily increasing demand for both general education teachers and special education teachers for some time (American Association for Employment in Education [AAEE], 2006; Cook & Boe, 2007).

The Teacher Attrition and Mobility study which used 2004-05 Teacher Follow Up survey data showed that the percentage of teachers leaving the profession grew from 5.6 % during the 1988-89 survey to 8.4 % during the most current survey. The statistics for teachers changing schools were relatively stable, growing from 7.9% in 1988-89 to 8.1% in the 2004-05 data. However, the demand for special education teachers grew at
a much higher rate (38%) than the demand for general education teachers (26%) from 1987-88 to 1999-00 (U.S. Department of Education, 2004).

Retention or Supply?

There are differing perspectives about whether teacher shortages are attributable to retention or supply. Ingersoll (2001) posits that the difficulty schools experience with staffing classrooms is due primarily to the revolving door caused by excessive turnover. Ingersoll and other researchers contend that the supply of teachers is adequate to meet the demand (Hanushek, Kain, & Rivkin, 2004; National Commission on Teaching and America’s Future [NCTAF], 2003).

Teacher characteristics and school demographics have been shown to impact retention. Teachers leave in greater numbers within the first few years of their career and the numbers increase again as teachers near retirement. Factors such as inadequate support from the school administration, lack of adequate induction support and preparation, low salary, as well as increased career opportunities for women negatively impact teacher retention (Ingersoll, 2003; Johnson, 2006; Strunk & Robinson, 2006).

Billingsley (2003) noted that teacher attrition is a major contributor to the shortage of special education teachers. In addition to the working conditions that general education teachers face, special education teachers have the added responsibilities of paperwork, unmanageable client loads, and issues with those in leadership positions who may have little expertise in special education.

In contrast, Cook & Boe (2007) characterize the shortage of qualified teachers as an imbalance in supply and demand. The majority of the teaching force is comprised of continuing teachers, 92% based on 1999-00 Public School Teacher Questionnaire
(PSTQ) surveys. The remaining 8% is filled by first time teachers and returning teachers. Considering the size of the teacher workforce, an 8% loss translates to a considerable number of teachers who must be replaced. The 2004-05 Teacher Follow Up Survey (TFS) data report a work force of 3,214,900 and a loss of 8.4% or 269,600 teachers (U.S. Department of Education, 2004).

Returning teachers are part of what is referred to as the reserve pool, which is composed of experienced teachers who left teaching and those who were prepared to teach but delayed entering the field. Approximately half of the vacancies in special and general education are filled from the reserve pool. Little is actually know about the size and quality of this source, which supplies a large portion of new hires annually (Cook & Boe, 2007). However, studies have shown that former educators are most likely to return to teaching if they do so soon after leaving. The longer a teacher stays out of the classroom the less likely they are to return. Earlier studies demonstrated that special education teachers typically return at a higher rate, and Black educators were shown to have a 50% higher probability of returning to teaching than their White counterparts (Singer, 1993, Willett & Singer, 1995).

There has been a decline in the supply of special education graduates since 1997-98. Each year special education teacher vacancies are filled by general education teachers and individuals pursuing alternative routes to teacher certification. This supply does not mitigate the need to replace thousands of special education teachers who are not qualified for their current placements (Cook & Boe, 2007; McLeskey, Tyler, & Flippin, 2004).
Geographic Location and Demographics

Teacher shortages vary widely within each state and between geographic regions (Murphy, et al., 2003). Research has shown a tendency for new teachers to seek out positions in schools that are in close proximity to their hometowns, or in demographically similar communities (Boyd, Lankford, Loeb, & Wyckoff, 2005). The demographic composition of communities and schools plays an important role in teacher recruitment and retention. This is evident in urban school districts where they continuously struggle to staff challenging schools and in the recruitment and retention efforts of rural districts. Turnover is higher in these hard to staff schools (Council of the Great City Schools, 2000; Murphy, et al., 2003).

The teacher’s race also plays a role. White teachers are more likely to turnover than their Black counterparts if the schools they are teaching in have a high proportion of minority students. Black teachers have also been shown as more likely to return to teaching after a spell out of teaching (Singer, 1993). Whether this is a function of racial composition, or the high poverty conditions that typically are characteristic of urban schools, is unclear (Hanushek, et al., 2004; Strunk & Robinson, 2006). These issues have policy implications considering the large numbers of new teachers that many urban school districts hire from the surrounding suburbs (Boyd, et al., 2005).

High Need Subject Areas

There are chronic teacher shortages in districts across the country, particularly in high-need subject areas such as mathematics, sciences, foreign languages, and special education. As immigrant populations increase, many states are also experiencing a critical shortage of English as a second language (ESL) teachers (Ingersoll, 2001; Tyler, Yzquierdo, Reyna, & Flippin, 2004). These shortages vary widely within each state, and
it is no surprise that high-poverty schools experience shortages in high-need subject areas the most acutely (Ingersoll, 2001; Urban Teacher Challenge, 2000).

There is general agreement among researchers that a chronic and pervasive shortage of qualified special education teachers exists across all geographic regions in the country with 98% of the states reporting considerable shortages (Billingsley, 2003; Brownell, Hirsch, & Seo, 2004; Rosenberg & Sindelar, 2005). Projections from the Bureau of Labor Statistics indicate that the number of special education teachers is expected to increase by 15% between 2006 and 2016. A 20% increase in the need for special education teachers in pre-K, kindergarten, and elementary is projected during this period. The increases are due to the growing number of students who require special education services, which is attributed to earlier diagnosis and advances in medical treatments. Educational reforms requiring higher standards for graduation and an increased emphasis on training and employment for the disabled population are also credited with the growing need for services and teachers (U.S. Department of Labor, 2008).

Policy Initiatives

State and federal mandates have an impact on the supply and demand for teachers. Class size amendments in states such as California and Florida compound their teacher shortages by increasing the number of teachers required to reduce the teacher-student ratio. Federal legislation such as the 2001 No Child Left Behind Act (NCLB) mandates that teachers meet specific requirements to be deemed highly qualified. These requirements may exacerbate the difficulties school districts have recruiting teachers, particularly special education and science teachers who are often
responsible for teaching multiple subject areas (Dai, Sindelar, Denslow, Dewey, & Rosenberg, 2007; Johnson, Birkeland, & Peske, 2005).

Alternative routes to certification have proliferated in a political environment that has demanded a greater supply of qualified teachers. In 2003, Congress appropriated $41.65 million for the Transition to Teaching program to enable mid-career persons to pursue alternative routes into the classroom (Mikulecky, Shkodriani, Wilner, 2004). All 50 states and the District of Columbia now have some type of alternate route to teacher certification with approximately 485 alternate route programs being implemented (Feistritzer, 2008). One of the more visible alternative route programs is Teach For America (TFA). A program founded in 1989 with the mission of closing the achievement gap in high-poverty schools. TFA recruits nationally for seniors and recent graduates from competitive colleges who have strong academic backgrounds and demonstrated leadership qualities. TFA core members recruited in 2003 had an average SAT score of 1310 and 3.5 GPA. It is important to note that core members commit to teaching for a minimum of two years (Decker, Mayer, Glazerman, 2004). This limited commitment is one of the perceived drawbacks for high need schools striving to create a stable learning environment.

**Teacher Quality**

Studies focusing on teacher quality and student achievement have examined attributes that are frequently identified as indicators of teacher quality: teacher preparation, licensure, years of experience, advanced degrees, and academic proficiency (Darling-Hammond, 1999; Eide, Goldhaber, & Brewer, 2004; Nougaret, Scruggs, & Mastropieri, 2005). The results have been mixed, and there is no strong consensus regarding the value of pedagogical preparation for teachers found in the
literature. It seems that the quality and content of teacher training programs vary so greatly that the impact is not always clear (Cochran-Smith & Fries, 2005; Goldhaber & Anthony, 2003). It is evident that more research is required. Wilson, Floden, & Ferrini-Mundy (2001) provided recommendations for future research that emphasized a set of research design principles to ensure the establishment of a foundation of credible teacher preparation research.

In a recent study Boe, Shin, & Cook (2007) found that extensive teacher preparation for both general and special education teachers contributed greatly to a number of teacher qualification indicators. *Extensive preparation* was defined as completing 10 weeks or more of practice teaching in addition to the following components: coursework in adapting instructional materials and educational psychology, observing other classroom teaching, and receiving feedback on teaching.

Although this definition demonstrates a relatively low bar for extensive preparation, Boe, et al., (2007) found these indicators to be connected with becoming fully certified, teaching in-field, feeling prepared to plan effectively, being prepared to handle classroom management, and feeling prepared to use a variety of instructions methods. All of which are attributed to more qualified teachers and the tendency to stay in teaching. The specific indicator of classroom management preparation was positively correlated with a beginning teacher’s likelihood of staying in teaching (Boe, Cook, & Sunderland, 2008a).

Studies of teacher licensure as an indicator of teacher quality have also produced contradictory results. Some researchers have found that students of teachers certified through alternative routes do at least as well in math and reading as students whose
teachers are fully state-certified. For example, in an experimental study in which students were randomly assigned to TFA teachers and a mix of other novice teachers and certified veteran teachers, TFA teachers had a statistically significant positive impact on math achievement. Reading achievement was about the same for TFA students and control students (Decker, et al., 2004). However, other studies have found that fully licensed teachers are more effective (Darling-Hammond, Holtzman, Gatlin, & Heilg, 2005). Goldhaber and Anthony (2003) concluded that there is not a strong enough research base from which to draw definitive conclusions about the relationship between teacher licensure and student learning.

Some research findings have indicated that there is not a strong correlation between teachers having advanced degrees and student achievement. The exceptions were mathematics teachers and reading teachers (Darling-Hammond, 1999; Wayne & Youngs, 2003). Years of experience have been positively related to student outcomes, indicating that first year teachers are generally less effective in improving student test scores (Boyd, Lankford, Loeb, Rockoff, & Wyckoff, 2007). A positive relationship between teachers' academic proficiency and student achievement has also been demonstrated (Wayne & Youngs, 2003). Goldhaber & Anthony (2003) noted in their Indicators of Teacher Quality that the majority of the studies on teacher academic proficiency and student learning show that the teacher’s academic proficiency may represent one of the best predictors of teacher quality.

It is generally recognized that teacher quality is one of the most important factors impacting student achievement (Sanders, & Rivers, 1996; Wright, Horn, & Sanders, 1997), and research has demonstrated that teaching experience is positively correlated
with student achievement (Boyd, et al., 2007; Johnson, 2006; Kane, Rockoff, & Staiger, 2006; Rockoff, 2004). Therefore, children with disabilities are not only affected by the lack of qualified special education teachers; high turnover rates mean the students will have less experienced teachers as well (Nougaret, et al., 2005). “Of first-time SETs hired in 1990-00, only 46% were extensively prepared to teach in special education” (Boe, Cook, & Sunderland, 2007, p. 36).

**Teacher Preparation and Certification Routes**

Amid efforts to address the on-going problem of teacher shortages there are disagreements about what it means for teachers to be qualified and about how teachers should be prepared. Many in the field of education see alternative routes to teacher certification programs as a serious threat and a means of deregulating the profession (Brownell, Ross, Colon, & McCallum, 2005; Darling-Hammond, et al., 2005). Others would like to consider teacher preparation more broadly, focusing on pathways into the classroom for talented individuals to become skilled teachers rather than focusing on program types (Boyd, Grossman, Hammerness, et al., 2007; Humphrey, Wechsler, & Hough, 2008).

Much like traditional teacher preparation programs, there is tremendous variation among alternative certification programs: their goals, selection process, preservice experiences, induction support, links to research-based professional development, cost, and time (Humphrey & Wechsler, 2007; Rosenberg, Boyer, Sindelar, & Misra, 2007; Zeichner & Schulte, 2001). This variation in programs makes it difficult to compare outcome measures and provide the rigorous research necessary to determine the most effective ways to prepare quality teachers (Wilson, et al., 2001; Zeichner & Conklin, 2005).
It is becoming apparent that there is as much variation within programs as between them (Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2006). In their study of effective characteristics of alternative certification programs, Humphrey and Wechsler noted that how participants experience their program depends a great deal on what they bring to the program. It is a combination of the program, person, and contextual elements that determines outcome, “Clearly, much more needs to be known about alternative certification participants and programs and about how alternative certification can best prepare highly effective teachers” (2007 p. 523).

**Research Problem**

The shortage of special education teachers is both chronic and pervasive. McLeskey, et al’s., (2004) review of research on special education teacher supply and demand utilized data from the U.S. Department of Education Office of Special Education Programs, National Center for Education Statistics Data, and the American Association for Employment in Education in order to investigate the extent of the special education teacher shortage. Data from the 2000-2001 school year indicate that approximately 11% of all SETs were not fully certified, translating into approximately 808,000 students taught by less than fully qualified teachers. More recent data for teachers providing special education and related services to students ages 6 through 12 under IDEA, Part B show 11% were not fully certified in 2003, these numbers dropped to 10% in 2004 and 2005. The classification was changed to *not highly qualified* in 2006, when again the data indicate that 11% of the teachers were not highly qualified.

Teacher shortages in many subject areas are due to excessive demand from attrition, insufficient supply, or both (Boe, Cook, & Sunderland, 2008b). Multiple factors that contribute to the lack of qualified special education teachers have been identified.
Inadequate numbers of qualified new special education teachers are prepared to teach, “Of first-time SETs hired in 1990-00, only 46% were extensively prepared to teach in special education” (Boe, et al., 2007, p. 36). Many first-time teachers who have been prepared to teach general education students accept special education assignments to gain entry into teaching. Therefore, it is not surprising when these teachers leave the field to take a position for which they are better qualified. The increasing demand for qualified special education teachers is also a result of an increasing population of children identified as having disabilities (Cook & Boe, 2007; McLeskey, et al., 2004).

Teacher turnover, defined as teachers leaving teaching, switching teaching areas, or moving to a different school, increased by over a third during 1991-92 to 2000-2001. That equates to 22-23% of public special education teachers and general education teachers turning over annually during this period. The effects of teacher turnover are long-reaching and contribute to a lack of stability in the teaching force, which impacts the functioning of schools and most importantly student achievement, particularly for the vulnerable population of students with disabilities (Boe, et al., 2007).

The financial impact of teacher turnover is also an important aspect that should be taken into consideration. Based on U.S. Department of Labor turnover cost estimates, the Alliance for Excellent Education (2005) computed replacement costs of about $4.9 billion annually for teachers who leave teaching employment and who move to another school. Considering the tight budgets that many school districts operate within, this is funding that could be put to use in other areas of need. The financial incentive associated with improving teacher turnover is an important issue for research and education policymakers (Boe, et al., 2008b).
Theoretical Perspective

Research in organizational behavior and management provides the theoretical framework that grounds this study. Job-choice theory and organization-person fit theory are considered as additional lenses through which school districts can examine their recruitment and hiring practices. Given the challenges of recruiting and retaining qualified special education teachers, the value of a good fit between the teacher and the school setting takes on greater importance.

Ingersoll’s (2001) analysis of hiring patterns indicates that staffing problems result not just from a shortage of qualified teachers but because many new recruits leave within a short time of hire. School districts and principals, as employers, should consider post-hire outcomes such as retention rates, performance, and job satisfaction at the beginning of the hiring process as part of their recruitment planning and objectives. The way employers recruit and place new teachers can influence post-hire outcomes (Breaugh & Starke, 2000). The organizational behavior and management research literature provides insight into how job choice, organization fit, and job fit theories can help inform the pre and post-hiring process (Liu & Johnson, 2006).

Kristof (1996) defines person-organization fit as the compatibility between people and organizations that occurs when: (a) at least one entity provides what the other needs, (b) they share similar fundamental characteristics, or (c) both. We know that teacher attrition varies a great deal based on teacher characteristics, the subject area assignments, and the school settings themselves (Ingersoll, 2003). Therefore, a carefully considered match between the prospective teacher and the teaching job has implications for job satisfaction and retention. School recruiting representatives should recognize that career changers have become an important pool of candidates for
teacher recruitment in both special and general education (Feistrizer, 2005; Rosenberg, et al., 2007). Consequently, the match between these prospective teachers and teaching assignments takes on added importance, given that second career individuals may have other employment options (Dai, Sindelar, Denslow, & Dewey, 2007).

**Purpose of the Study**

The purpose of this study was to understand more about the characteristics of special education teachers who are retained in a large urban school district. The overarching goal was to ascertain who stays, who leaves, and who returns. Although teacher retention has been studied extensively, the demographic of the teaching force is changing dramatically (Feistritzer, 2005; Johnson, 2004). Alternative certification routes have attracted talented and diverse career changers from a variety of backgrounds who may not have otherwise chosen to enter the field of teaching.

In addition to contributing important information to the retention literature, identifying a profile of individuals who chose to teach special education and tended to be retained at higher rates, provides valuable information to teacher preparation program providers, recruitment, and staffing managers.

The study examined the personal and academic background characteristics of newly-hired special education teachers to determine if relationships existed between individual characteristics, teaching assignments, specific school assignments, and retention. The study also sought to predict how many years after hire a special education teacher may teach before leaving. The annual retention and school assignment status for all special education teachers hired beginning 2003-2004 through 2005-2006 were reviewed for a period of six years.
Research Questions

The research questions guiding this study were:

1. Does the risk of leaving teaching differ with respect to a special education teacher’s personal characteristics?

2. Does the risk of leaving teaching differ with respect to a special education teacher’s level or type of preparation?

3. Does the risk of leaving teaching differ with respect to a special education teacher’s school assignment (percentage of poverty and minority student enrollment)?

4. Does the risk of leaving teaching differ with respect to a special educator’s teaching assignment?

5. How many years on average do newly hired special education teachers continue to teach in a large urban school district?

6. What is the probability of a special education teacher returning to teaching after leaving?

The research questions will focus on the following variables: (a) teacher characteristics—race, gender, age; (b) teacher preparation route; (d) special education teaching assignment—students’ disability classification; (e) school demographics—percentage of free and reduced lunch, percentage of minority students served.

Definition of Terms

The definition of teacher retention and turnover behaviors will be the same as those outlined in Boe, et al’s., (2007) study of teacher turnover in special and general education, and used in SASS and TFS data tables. The retention components of attrition and migration are differentiated.

Attrition- refers to leaving teaching employment. In this study attrition will refer only to leaving teaching in the district.

School Attrition- means to leave a particular school.
Teaching Area Attrition- refers to teachers changing fields (e.g., leaving a teaching assignment in special education for some other teaching assignment).

Leavers- refers to teachers who leave teaching employment.

School Migration- indicates that a teacher has moved from one public school to a different school. These teachers are referred to as Movers and teachers who stay in the same school are referred to as Stayers.

Switchers- refers to teachers who transfer from one teaching area to a different area (such as from special education to elementary education)

Switching is distinguished from other forms of transfer such as migrating to a different school. Teaching area transfer can coincide with school migration.

Traditional Teacher Preparation- refers to four and five-year, state-approved, teacher education degree programs with a supervised internship component leading to eligibility for a standard teaching credential.

Alternative Teacher Certification- refers to state approved programs that allow individuals with the minimum of a bachelor’s degree in a field other than education to become certified through competency-based programs that may be provided through school districts, or college of education programs that provide streamlined post baccalaureate certification programs.

**Significance of the Study**

There is general consensus among researchers that teacher turnover and the shortage of qualified teachers in high-need subject areas and schools are serious issues. Continuous turnover and the practice of hiring under-certified teachers in hard to staff schools impacts the ability of schools to meet the needs of their students, particularly the vulnerable population of special needs students—as well as the staff and community. Considering the chronic shortages of special education teachers and the number of alternatively certified people teaching special education, it is important to take an in-depth look at the individuals who choose to enter the field in order to address the questions of who stays and who leaves.

Additional study of teacher turnover and retention, as a function of teacher characteristics, qualifications, and teacher training is needed. This study provides a
district level perspective that can be considered along with the current research based on national aggregated data. Examining special education teacher characteristics, career paths, and retention over time may help to inform the hiring process and placement guidelines for school organizations. These data may also provide useful information for teacher preparation program designers—both traditional and alternative.

**Limitations**

This study was conducted in a large urban school district in the southeast that has a state-approved alternative certification program. The sampling frame limits the generalization of findings. The school district maintains a detailed, computerized personnel tracking system that was used to gather the data necessary to study the special education teachers. However, the tracking system provides limited information about teachers who leave the district. The sample, special education teachers hired within the 2003-04, 2004-05, and 2005-06 school years, included teachers with years of experience who were returning to the classroom. Careful consideration of how the more experienced teachers’ data influenced the retention findings is important to overall conclusions.

The personnel tracking system provided data specific to the teacher, and the schools in which they were assigned. However, the individual classroom data is limited to the job code, which indicated the exceptionality assignment. The data set does not provide details such as number of students or the possible range of students’ disabilities for which the teacher was responsible—all important factors for satisfactory working conditions that impact retention.

It has long been recognized that mentorship and administrative support in particular, are critically important to the retention of new teachers (Boe, et al., 2008a;
Johnson, 2004). This study did not measure the presence or quality of mentorship and administrative support that the special education teachers had access to as beginning teachers.
CHAPTER 2
REVIEW OF LITERATURE

The purpose of this chapter is to provide an overview of the recent literature related to the supply and retention of teachers. The shortage of high-need subject area teachers and the differing perspectives on the causes of these shortages are discussed with a focus on special education. The importance of preparing and retaining qualified teachers is reflected in the teacher quality research, which underscores the equity issues surrounding the impact of teacher turnover for high-need students and achievement. Additionally, organizational behavior and management theories regarding job choice and organizational fit are discussed as additional lenses through which school districts may examine their hiring practices. This chapter provides a framework for understanding the relationships between the qualities and characteristics of schools and teachers, which can serve as predictors for retention.

Federal and State Policy

The impact of federal and state mandates on the teacher labor market has both intended and unintended consequences. The Individuals with Disabilities Education Improvement Act (IDEA) is a case in point. The IDEA was enacted to ensure that special needs students have access to necessary services. However, one outcome of this mandate has been an increased demand for qualified special education teachers. The field has been trying to catch up with this demand for over two decades (McLeskey, et al., 2004). The IDEA mirrors requirements in the No Child Left Behind Act (NCLB) reauthorized in 2001, which mandates accountability by requiring academic achievement for all students. In addition, the law requires that all teachers, including special education teachers, be highly qualified for the core academic subject areas they
teach. In order to be designated as *highly qualified*, teachers must have a minimum of a bachelor’s degree, full state certification, and also demonstrate subject matter knowledge and teaching skill in each core academic subject they teach (H.R. Rep. No. 108-779, 2004; Thornton, Peltier, & Medina, 2007).

The IDEA and NCLB legislation both commit to providing resources and requiring accountability measures for ensuring that the educational needs and rights of children with disabilities are met. However, NCLB is widely criticized as an unfunded mandate, and many states struggle to meet the law’s requirements. Despite these well-intentioned policy initiatives, and in some settings because of them, chronic shortages of qualified special education teachers persist, and special needs children continue to be served by under qualified teachers (Boe & Cook, 2006; Katsiyannis, Zhang, & Conroy, 2003; McLeskey, et al., 2004).

Mandates such as the constitutional amendments to limit class size, which many states have passed in an effort to increase the quality of education and student achievement in their schools, also have unintended outcomes. The class size amendments such as those passed in California and Florida place additional burdens on school districts to find funding, recruit, and retain sufficient numbers of highly qualified teachers. These mandates have resulted in teacher shortages, which are reflected in the hard-to-staff subject areas such as mathematics, the sciences, and special education, and budget shortfalls in already cash strapped districts (Florida Tax Watch, 2002; Johnson, 2006).
**Teacher Labor Market**

Teacher labor market statistics show a variation in levels of supply and demand across the geographical regions in the country. The American Association for Employment in Education (AAEE) 2006 report data show that of the 64 education fields surveyed, 50% now report some or considerable shortage. Additionally, the shortage of qualified special education teachers is shown as greater than any other subject area throughout the country, particularly in the largest cities and high-poverty schools.

A complex range of factors contributes to the shortage of qualified special education teachers. The population of children identified as having disabilities has grown faster than the general population of students. Advances in medical technology, increased awareness and earlier diagnosis, as well as expanded eligibility criteria have combined to increase the number of children eligible for services (Florida Legislature, 2003; U.S. Department of Education, 2005). Some states have seen tremendous growth in the special education population. For example, Florida experienced a 167% increase in enrollment between 1983-84 and 2002-03 as compared to the overall student population growth of 70%. There is variation among exceptionalities as well. Two of the fastest growing exceptionalities in Florida, autism, and other health-impaired students, grew 129% and 425% respectively from 1997-98 and 2002-03 (Florida Legislature, 2003).

Although there is variation in the need for teachers among the exceptionalities, as well as within and across states, the chronic shortage of highly qualified special education teachers is well documented. Whether these on-going shortages are caused by excessive turnover or an insufficient supply of new teachers continues to be a subject of contrasting viewpoints (Boe, et al., 2008b; McLeskey, et al., 2004).
**Teacher Shortage: Retention or Supply?**

The differing perspectives on the causes of the teacher shortage are a dilemma for policy makers and school district administrators. Researchers in recent studies have posited that the seemingly contradictory findings may result from a combination of factors: (a) variations in the definition of attrition, (b) the use of different data sets, and (c) the inclusion of different variables, for example—private and public teachers, full and part-time teachers. Some studies have focused on teachers leaving the field while others have considered a combination of leavers and teachers migrating to other schools, districts, or fields. If research is to inform practice, consumers must weigh the findings carefully. (Boe, et al., 2008a; Cook & Boe, 2007; Harris & Adams, 2007; Ingersoll, 2001, 2003).

Teacher turnover has been referred to as a revolving door. The negative effects that the lack of stability in the teaching force can have on student achievement, particularly in difficult to staff schools are an on-going concern. Teacher turnover, not the lack of prepared teachers, has been implicated as the primary cause for the shortage of qualified teachers in the nation’s classrooms (Ingersoll, 2001, 2003). Based on an analysis of the 1990-91 Schools and Staffing Survey (SASS) and its supplement the 1991-92 Teacher Follow-up Survey (TFS), Ingersoll (2001) reported a 14% turnover rate for teachers. He compared this rate with an 11% turnover rate for all occupations published by the Bureau of National Affairs and a 12% turnover rate reported for nurses in hospitals in the mid-1990s in order to demonstrate that the teaching profession has a higher turnover rate than other professions. It is important to note however, that Ingersoll’s definition of turnover includes teacher migration, and that a comparison of turnover rates from different data sources and time periods impacts the interpretation of
his findings (Boe, et al., 2008b; Guarino, Santibanez, & Daley, 2006; Harris, & Adams, 2007). Nonetheless, whether teachers leave or migrate, the impact to the schools that lose these teachers is the same (Johnson, Berg, & Donaldson, 2005).

In an analysis of the research literature on special education teacher retention and attrition, Billingsley (2004) identified attrition as an important factor in the shortage of special education teachers. The attrition rate of special education teachers has been reported as higher than that of general education teachers, and when combined with the number of special education teachers who transfer to the field of general education, the total attrition rate for special education is nearly double that of general education teachers (McLeskey, et al., 2004). Interestingly, recent research analyzing SASS and TFS data over a ten-year period from 1990 through 2001 indicates that the attrition rate of general education and special education teachers has been about the same (Boe, et al., 2008b). It is important to note that aggregated national data provides one perspective and does not reflect the considerable variation in turnover that exists at the state and local level (Guarino, et al., 2006; Villegas & Clewell, 1998).

How attrition is defined is important with regard to how studies are interpreted and compared. Billingsley (2004) provides a four-category definition for special education teacher retention, transfer, and attrition. The first category, retention, refers to teachers remaining in the same school as the previous year. The second category, transfers to another special education position, includes those who stay in special education teaching but transfer to another position whether in the same or different district. The third category, transfers to general education teaching, pertains to teachers who leave
special education, but remain in teaching, and the fourth category, exit attrition, includes those who leave teaching altogether.

**Why Teachers Leave**

Work environment conditions, personal characteristics, and qualifications each play integral roles in teacher retention. Special education teachers in particular have challenges that are specific to their field. Although certification status, perceived stress, school climate, and age are all identified as strong predictors for special educator retention and attrition (Miller, Brownell, & Smith, 1999), job design also has relevance. The concept of job design provides a framework within which to study the nature of a special educator’s job. “Does the job, with all that it entails, make sense? Is it feasible? Is it one that well-trained, interested, special education professionals can manage in order to accomplish their major objective-enhancing students’ academic, social and vocational competence?” (Gersten, Keating, Yavanoff, & Harniss, 2001 p. 551). Poor job design affects teachers negatively, resulting in stress, decreased job satisfaction, and a weakened sense of efficacy (Billingsley, 2004).

**Working Conditions**

Working conditions are very important to teachers and can affect their decision to stay, move to another school, or leave teaching altogether (Billingsley, 2003; Ingersoll, 2003; Johnson & Birkeland, 2003; Johnson, 2006). Working conditions are particularly important to special education teacher retention efforts. School climate and collegial relationships have been shown to be more important to the special educators than to the general educators, “job responsibilities and the extent to which their schools are caring and supportive of students and staff…affect teachers’ confidence and intent to stay in the profession” (Carlson, Brauen, Klein, Schroll, & Willig, 2002, p. 1).
Workplace conditions such as reasonable teaching assignments, collaborative colleagues, meaningful professional development, and safe facilities have been identified as important factors for both recruitment and retention (DeAngelis & Presley, 2007; Gersten, et al., 2001; Johnson, 2006). Administrative support has come to the forefront as one of the more important factors in teacher retention and sense of efficacy. Although the importance of mentoring and collegial support for new teachers has long been recognized (Billingsley, 2004; Miller, et al., 1999), recent research has highlighted support from the principal or building administrator as critically important (Boe, et al., 2008b).

**Individual Characteristics**

Considerable retention research has focused on the individual characteristics of teachers in an effort to understand why people stay or leave the classroom. Characteristics such as age, gender, race, academic preparation, and teaching field have been identified as predictors for attrition. Age has been shown to have a u-shaped relationship with leaving the classroom, indicating greater attrition rates within the first 3 to 5 years and again after 20 years, coinciding with child rearing years and retirement (Harris & Adams, 2007; Imazeki, 2005; Strunk & Robinson, 2006). It is important to note that many of these teachers contribute to the reserve pool of experienced teachers who later return to the field. This reserve pool is a rich source for recruitment and provides a substantial percentage of experienced teachers (Cook & Boe, 2007).

Age is the only demographic variable that is consistently linked to attrition in the special education literature. Special education teachers show the same pattern of early attrition as their general educator counterparts—younger teachers are more likely to
leave than older teachers. Younger special educators are also more likely to transfer than older special education teachers (Billingsley, 2004).

The age at which a teacher begins teaching appears to impact attrition differently for men and women. Imazeki (2005) found that men who begin teaching when they are older are more likely to leave than women. Conversely, women who begin teaching after 30 years of age have a lower exit attrition rate than women who begin teaching prior to the age of 30. The relationship between teacher characteristics such as age and gender and retention has implications for programs that specifically recruit older, second career individuals. These alternative certification route programs can help high need districts that typically have difficulty staffing schools. However, it is important to consider that some of these teachers will have high opportunity costs, and may be more likely to leave for higher paying non-teaching positions (Dai, et al., 2007; Lui & Johnson, 2006). Women with advanced degrees and those hired to teach in large districts have also shown a greater tendency to leave (Harris & Adams, 2007; Imazeki, 2005).

School Characteristics

The characteristics of a school’s student population and socioeconomic status are directly related to its ability to recruit and retain teachers. Retention varies according to school poverty levels and the percentage of minority student enrollment (Elfers, Plecki, & Knapp, 2006; Hanushek, et al., 2004; Imazeki, 2005; Scafidi, Sjoquist, & Stinebrickner, 2007; Strunk & Robinson, 2006). In a study of school characteristics and teacher turnover in Georgia school districts, Scafidi, et al. (2007) found that teachers who begin teaching in schools with low student achievement, high poverty rates, or in schools with a high percentage of minority students, are more likely to leave or move to other schools within the district. Similar to Hanushek, et al’s., (2004) study in Texas
school districts, the researchers found strong evidence that the Georgia schools with large percentages of Black students have much higher attrition rates than other schools. However, when the teacher is Black he or she is more likely to stay at schools with a large percentage of Black students. Similar findings are reported regarding Hispanic teacher retention in schools with higher percentages of Hispanic students.

Research on teacher salary and mobility in Wisconsin school districts indicate that turnover rates are higher in urban and rural districts that serve the most low-income students. The teacher’s race is also identified as a factor in retention. Minority teachers demonstrate a higher attrition rate overall. Although earlier studies demonstrated that Black educators were shown to have a 50% higher probability of returning to teaching after a spell out of teaching than their White counterparts (Singer, 1993, Willett & Singer, 1995). Minority teacher retention rates also show an increase when they are assigned to schools with larger proportions of non-white students, while White male teachers demonstrate a greater likelihood of leaving when there is a greater proportion of non-white students (Imazeki, 2005).

Loeb, Darling-Hammond, & Luczak (2005) examined predictors of high rates of turnover in California schools:

We find that the racial, ethnic, poverty, and language composition of a school’s student body influences a school’s turnover, along with its difficulty filling vacancies and proportions of beginning teachers. However, we also find that working conditions add substantial predictive power to models of turnover and that, when these working conditions are added, the influence of student demographics on reported turnover and hiring problems is reduced. (p. 65)

A study of North Carolina teachers documented the tendency for more qualified and experienced teachers to seek positions in schools that serve more affluent and higher performing student populations, which presumably have more favorable working
conditions. The study did not focus on retention, however it lends credence to the idea that working conditions and student characteristics play an important role in teacher turnover. Retention is an important issue to address if school districts wish to ensure that disadvantaged populations have access to qualified, experienced teachers (Clotfelter, Ladd, & Vigdor, 2006).

**Teacher Supply**

In contrast to views identifying turnover as the root of the teacher shortage problem, other researchers have found that the attrition rates in education, both general and special education, are relatively stable and no higher than comparable professions. Although there is agreement that any attempts to improve retention will serve to benefit the profession as a whole; recent studies demonstrate that a supply-side effort is needed to ensure that the ongoing need for teachers is met (Boe, et al., 2008b; Harris & Adams, 2007).

An analysis of trends in the rate of general education and special education teacher attrition, transfer, and migration from 1991-92 through 2000-01 indicates that turnover increased by more than a third during the nine year period. “Clearly, teacher turnover has been high nationally: 22-23% of public SETs and GETs either left teaching, switched teaching area, or migrated to a different school annually during the 1990s” (p. 23). While these numbers are high, it is important to note that just 30% of this turnover resulted from attrition. Transfer and migration among teachers accounted for the majority of the turnover. Regardless, the impact at the school level is the same whether a teacher leaves or transfers. These teachers do however, fill needs in other schools, and are not lost to the profession (Boe, et al, 2008b).
Contrary to studies claiming that high turnover, not lack of prepared teachers is the cause of shortages, analysis of national datasets show that attrition among public school teachers is no higher than other occupations and is not unreasonable to expect. Increasing the supply of highly qualified teachers is needed to address the teacher shortages—particularly in the area of special education (Boe, et al., 2007, 2008b; Harris & Adams, 2007). The supply of highly qualified special education teachers is a long-standing problem. In the 1999-2000 school year, more than 12,000 positions went unfilled or were filled with substitute teachers because of a shortage of qualified applicants. In addition, 33,262 special education teachers were not fully certified for their main teaching assignment, requiring administrators to request 5,369 class size waivers and 5,480 caseload waivers (Carlson, et al., 2002).

It is evident that an insufficient number of new special education teachers are prepared annually. Nearly twice as many elementary teachers are prepared for each available position as special education teachers (McLeskey, et al, 2004). During the 1999-2000 school year, 18% of the first-time special education teachers hired had been prepared for general education teaching (Boe, et al., 2008b). A review of the degrees awarded to special education majors in 2005-06 shows a total of 7,977 bachelor’s and 15,586 master’s degrees. In elementary education 44,374 bachelor’s, and 19,771 master’s degrees were conferred (U. S. Department of Education, 2007). Typically, the majority of individuals earning master’s degrees in special education are already employed as teachers. Therefore, these numbers do not reflect additional supply. In light of the fact that many individuals who complete education degrees either delay
entrance into teaching or do not enter the teaching field at all, administrators must look to other sources to staff their classrooms (Cook & Boe, 2007).

The majority of the teaching force, about 92%, will continue in their current positions, or move to another teaching position. The vacancies created by teachers who leave must be filled with individuals who are reentering the profession from the pool of people who either deferred entry or left for other reasons, or newly prepared teachers (Boe, et al., 2008b).

Former teachers are most likely to return if they do so soon after leaving. The longer a teacher stays out of teaching, the less likely they are to return. Singer (1993) indicates that up to 34% of the special education teachers who leave teaching return within years.

**Alternative Certification Routes**

Alternative routes to teacher certification have become an integral part of the teacher preparation landscape by providing an additional source of newly prepared teachers (Humphrey, et al., 2008; Johnson, Birkeland, et al., 2005). On average, one in five of the country’s new teachers is certified through alternative routes rather than pursuing traditional education degrees. The National Center for Education Information (NCEI) survey data indicate that all 50 states and the District of Columbia report having some type of alternative route program for teacher certification (Feistritzer, 2008). Alternate route teachers are teaching subjects that are in greatest demand for teachers. One-fifth (20 percent) of teachers coming through alternate routes, compared to 6 percent of all public school teachers, teach mathematics. Fourteen percent of alternate route teachers, compared to 8 percent of all teachers, teach general special education. The pattern continues for all high demand subject areas. (Feistritser, 2005, p. 13)
Alternate route programs vary in multiple ways, such as who administers them, program requirements, program components, as well as length and cost, among others. These variations contribute to inconsistency in program definition regarding what is and what is not an alternative route and impact the ability of researchers to accurately study, compare and report findings on outcomes (Feistrizer, 2005; Humphrey, et al., 2008; Rosenberg & Sindelar, 2005; Wilson, et al., 2001; Zeichner & Schulte, 2001). Similar issues affect research on traditional programs. A great deal of variability can also be found among traditional teacher preparation programs in schools and colleges of education (Levine, 2006; Zeichner & Conklin, 2005). Clear and consistent descriptions of teacher preparation programs are required if research is to inform policy and practice.

The definition for alternative certification adopted by the American Education Research Association Panel on Research and Teacher Education (2005) states that teacher education programs that enroll non-certified individuals with at least a bachelor’s degree and offer shortcuts, special assistance, or unique curricula, which lead to eligibility for a standard teaching credential, are classified as alternative certification (Cochran-Smith, & Zeichner, 2005). The AERA definition reflects the broad nature of the types of programs available.

The National Center for Education Information (NCEI), which has provided data on alternative routes for teacher certification since the first programs emerged in the 1980s, gives a more detailed description. The center developed a classification system in 1990 to categorize the differing routes used in each state for certifying teachers (Feistritser, 2005). The NCEI classification system, which is listed below, provides a common framework that can be used to differentiate alternative certification programs.
**CLASS A:** is the category reserved for those routes that meet the following criteria:

The alternative teacher certification route has been designed for the explicit purpose of attracting talented individuals who already have at least a bachelor’s degree in a field other than education into elementary and secondary school teaching.

The alternate route is not restricted to shortages, secondary grade levels or subject areas.

These alternative teacher certification routes involve teaching with a trained mentor, and any formal instruction that deals with the theory and practice of teaching during the school year, and sometimes in the summer before and/or after.

**CLASS B:** Teacher certification routes that have been designed specifically to bring talented individuals who already have at least a bachelor’s degree into teaching.

These routes involve specially designed mentoring and some formal instruction.

However, these routes either restrict the route to shortages and/or secondary grade levels and/or subject areas.

**CLASS C:** These routes entail review of academic and professional background, and transcript analysis of the candidate. They involve specially (individually) designed in-service and course-taking necessary to reach competencies required for certification, if applicable. The state and/or local school district have major responsibility for program design.

**CLASS D:** These routes entail review of academic and professional background, and transcript analysis. They involve specially (individually) designed in-service and course-taking necessary to reach competencies required for certification, if applicable. An institution of higher education has major responsibility for program design.

The following classes are for exceptions and rarely used.
CLASS F: These programs are basically emergency routes. The prospective teacher is issued some type of emergency certificate or waiver, which allows the individual to teach, usually without any on-site support or supervision, while taking the traditional teacher education courses requisite for full certification.

CLASS G: Programs in this class are for persons who have few requirements left to fulfill before becoming certified through the traditional approved college teacher education program route, e.g., persons certified in one state moving to another; or persons certified in one endorsement area seeking to become certified in another.

CLASS H: This class includes those routes that enable a person who has some "special" qualifications, such as a well-known author or Nobel Prize winner, to teach certain subjects.

CLASS I: These states reported that they were not implementing alternatives to the approved college teacher education program route for licensing teachers.

CLASS J: These programs are designed to eliminate emergency routes. They prepare individuals who do not meet basic requirements to become qualified to enter an alternate route or a traditional route for teacher licensing.

CLASS E: These post-baccalaureate programs are based at an institution of higher education.

As studies on alternate routes to teacher certification continue, researchers are finding that there is as much variation within the individual programs and the way each participant experiences it, as there is between the individual programs (Boyd, Grossman, Hammerness, et al., 2007; Humphrey, et al., 2008; Johnson, Birkeland, et al., 2005). The differences in teacher preparation programs, in addition to the lack of
clear and consistent program definitions and descriptions, combine to underscore the counterproductive practice of comparing programs to determine which is the best (Cochran-Smith & Fries, 2005, chap. 2; Humphrey, et al., 2008; Zeichner & Schulte, 2001).

Researchers emphasize the need for more in-depth study of the multiple pathways that provide teacher training and certification to address the question: What are the relative contributions of the various components of these multiple pathways into teaching? More comprehensive data about program content and how participants learn is needed in order to determine how these multiple pathways tailor programs to address the needs of a diverse set of participants while providing high-quality teacher preparation with the goal of positively impacting student achievement (Wilson, et al., 2001; Zeichner & Schulte, 2001).

**Characteristics of Effective Alternative Certification Routes**

As a result of the increasing role that alternative certification routes play in the preparation of the nation’s new teachers, understanding what constitutes an effective program has become increasingly important (Boyd, Grossman, Hammerness, et al., 2007; Humphrey, et al., 2008). There are several recurrent themes in the literature that impact program quality including: (a) selection criteria, (b) placement criteria, (c) teacher training, (d) mentor support, and (e) induction.

Rigorous selection criteria and high standards for choosing participants are critical to the process. Examples of screening tools used in some programs are strong subject area mastery, minimum grade point average, test scores, and college selectivity (Peske, 2003; Wilson, et al., 2001). In addition, previous classroom experience such as substitute teaching or work as a paraprofessional is considered an asset. It is also
important to select placements strategically. Careful placement of participants in schools with strong leadership, a culture of support, and adequate resources is identified as one of the most important components of an effective alternative teacher certification program (Humprey, et al., 2008).

There has been considerable debate regarding the efficacy of pedagogical training. Some researchers have identified a positive relationship between teacher training, certification, and student achievement (Cochran-Smith & Zeichner, 2005; Darling-Hammond, et al., 2005; Wilson, et al., 2001). Other researchers have conducted studies that do not find a significant difference between traditionally certified new teachers and new teachers entering the classroom through an alternative route (Decker, et al., 2004; Kane, et al., 2006). Successful teacher training programs, whether alternative or traditional, have been found to provide timely and relevant coursework that is adapted to the needs of the participants, including training in instruction, management, curriculum, and working with a diverse student population (Peske, 2003; Wilson, et al., 2001).

Effective mentor support is an important component of teacher preparation and development. Strong teacher induction programs provide time and resources for new teachers and their mentors. Mentors are encouraged to plan with new teachers, to share curricula, and model lessons. Timely coaching and feedback in conjunction with frequent classroom observations provide essential support. These induction activities are particularly important for alternative teacher certification program participants (Humprey, et al., 2008; Johnson, Birkeland, et al., 2005).
Alternative Route Teachers in High-Need Schools

Teacher turnover varies considerably within and between school districts. Typically, urban school districts lose teachers at a higher rate than their suburban neighbors. In a study of New York City schools, approximately 44% of elementary and 55% of middle school teachers leave or migrate from their initial placement within two years. Many of these teachers tend to migrate to higher achieving schools with fewer minority students (Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2007). In Illinois school districts about 44% of new teachers leave their initial school within their first two years, and 67% leave within five years.

Roughly one-third of the teachers who leave during their first five years return to teach—but not in the most disadvantaged schools (DeAngelis & Presley, 2007). Typically, new and returning teachers prefer to teach in communities similar to the ones in which they live or grew up (Boyd, et al., 2005). As a result districts, primarily urban and rural, are turning to alternatively certified teachers who are willing to teach in high-need schools (Cook & Boe, 2007; Dai, et al., 2007; Feistritzer, 2005).

Alternative route programs have also demonstrated the ability to attract a more diverse pool of prospective teachers in terms of age, gender, and ethnicity (Feistritzer, 2005, 2008; Zeichner & Schulte, 2001). Although many program participants continue to reflect the racial composition of their local labor market (Humphrey, 2008), these routes do provide an important contribution given the differences between the racial makeup of the student population and that of the teaching workforce. The demographic that comprises the majority of the newly hired teacher workforce is white females under the age of 30 (Sachs, 2004), and over 40% of all public schools have no minority teachers (Rosenburg & Sindelar, 2005). The differences in sociocultural identities between
teachers and students influence teacher retention and success in urban schools (Sachs, 2004). These disparities also impact minority students who would benefit from the opportunity to have teachers who understand their culture and can be seen as role models (Villegas & Clewell, 1998).

**Special Education Alternative Routes to Certification**

Alternative certification routes for special educators have provided an increasing number of teachers for hard to staff settings and exceptionalities such as emotional and behavioral disorders (Katsiyannis, et al., 2003; Tyler, et al., 2004). Data from the 2002 Study of Personnel Needs in Special Education (SPeNSE) indicate that approximately 7% of current special education teachers earned their certification through an alternative route, compared to 4.5% of their general education counterparts. About 12% of current special education teachers for students with emotional disturbance have achieved certification through an alternative route (Carlson, et al., 2002). Alternative certification routes have also been credited with bringing more culturally and linguistically diverse (CLD) teachers, a significantly underrepresented group, into the field of special education. This is particularly beneficial in special education where there are large numbers of minority and ESL students (Feistritzer, 2005; McLeskey, et al, 2004; Tyler, et al., 2004).

Although continued study is needed, research on alternative certification routes for special education teachers has begun to provide evidence that well designed programs can and do produce effective teachers. The nation’s chronic shortage of highly qualified special education teachers has resulted in a myriad of alternative certification programs, which vary in content and implementation. Rosenberg & Sindelar (2005) identified program components such as (a) meaningful collaboration between
stakeholders, (b) adequate program length and rigor, and (c) high-quality supervision as indicators of a well designed program. These well designed alternative route programs provide a more diverse pool of well prepared teacher candidates and are an important component of the supply effort (Sindelar, Daunic, & Rennells, 2004). Unfortunately, fast-track programs whose purpose is to move individuals into the classroom quickly without adequate support also exist, contributing to the number of under-qualified teachers who fill many classrooms (Rosenburg, et al., 2007).

**Equity Issues**

Teacher quality is considered to be one of the most important factors impacting student achievement in the classroom (Sanders & Rivers, 1996). Teacher quality contributes more strongly to student learning than class size or ethnic and socioeconomic status (Hanushek, et al., 2002; Wright, et al., 1997). The strong relationship between teacher quality and student achievement brings equity issues to the forefront for hard to staff schools that frequently turn to under-certified teachers to fill vacancies.

**Teacher Quality**

The federal government highlights teacher quality in the NCLB legislation, which mandates that all students will have access to highly qualified teachers. State policies also focus on teacher quality through mandates to improve teacher recruitment, education, certification, and professional development (Darling-Hammond, 1999). A number of states and school districts have begun using student achievement data to measure and reward teacher quality. Some districts have gone even further by implementing controversial teacher performance pay programs based on student learning gains (Eide, et al., 2004).
Although there is no clear consensus on a definition, the research literature identifies two general ways to conceptualize teacher quality—teacher quality defined by teacher qualifications or inputs, and teacher quality defined by student achievement or outcomes (Cochran-Smith & Zeichner, 2005; Goe, 2007; Eide, et al., 2004). Common attributes, which are frequently identified as indicators of teacher quality such as degree level, teacher preparation—pedagogical versus content knowledge, licensure, years of experience, and academic proficiency, are not easily correlated with teacher effectiveness. However, student achievement can be measured and attributed to the teacher (Clotfelter, et al., 2006; Goe, 2007; Rivkin, Hanushek, & Kain, 2005). Reflecting two decades of research on the impact of school inputs on students’ achievement, Hanushek defined teacher quality quite simply, “good teachers are ones who get large gains in student achievement for their classes; bad teachers are just the opposite” (Cochran-Smith & Zeichner, 2005, p. 40).

States ensure that teachers demonstrate a minimum level of competency by requiring licensure or certification. The majority of teachers meet these certification requirements through traditional teacher preparation programs, which require varying degrees of field experience, coursework in pedagogy and subject area, as well as passing the requisite licensure exams. States also permit districts to employ non-traditionally licensed teachers who achieve licensure through alternative routes. These programs may be very similar to a traditional teacher preparation program with preservice field experiences and coursework, or a fast-track program that is basically on-the-job training with concurrent professional development. The ability to circumvent tradition preparation in order to enter the teaching field has resulted in debates about
the value of teacher education, and whether candidates with strong academic backgrounds might be at least as effective as teacher education graduates (Darling-Hammond, et al., 2005; Eide, et al., 2004). Researchers conclude that there is not a strong enough research base from which to draw definitive conclusions about the relationship between teacher licensure and student learning or the value of pedagogical preparation for teachers. The quality and content of teacher training programs vary greatly, and the impact is not always apparent (Goldhaber & Anthony, 2003; Wilson, et al., 2001).

There is general consensus that a degree major or the number of math courses a teacher has taken matters for mathematics teachers, particularly at the secondary teaching level (Goldhaber & Brewer, 2000). However, evidence is lacking to support a similar relationship in other subjects. Researchers have also found that advanced degrees do not appear to increase teachers’ skills or raise the quality of teaching (Clotfelter et al., 2006; Harris & Sass, 2007; Rivkin, et al., 2005), an interesting finding in light of district policies providing pay increases for advanced degrees.

There is considerable evidence showing that a teacher’s ability increases with years of experience as measured by his or her contribution to student learning. Although Clotfelter et al., (2006) found that veteran teachers continue to gain skill in later stages of their careers; other researchers have found that there are diminished returns on experience after five years. Subsequent years of experience do not appear to contribute additional impact (Hanushek, Kain, O’Brien, & Rivkin, 2005; Harris & Sass, 2007; Kane, et al., 2006; Rockoff, 2004).
Rockoff’s (2004) study of elementary teachers and students found that teacher experience is a significant predictor of test scores for both reading subjects and math computation. Evidence for gains in math was weakest. The study indicated that two years of teaching experience positively impacts student math scores, but that subsequent years of experience may actually have a negative impact on math scores. Harris and Sass (2007) also had mixed results in their analysis of the effects of teacher experience. More experienced teachers produced greater student gains, but only in elementary and middle school reading. Goldhaber (2007) found that students assigned to a teacher who has one to two years of experience outperform students with novice teachers by 3% to 7% of a standard deviation, and students with teachers who have three to five years of experience tend to outperform those with one to two years of experience by an additional 2% of a standard deviation. However, little evidence of significant gains for students has been associated with teaching experience beyond five years (Eide, Goldhaber, & Brewer, 2004; Rivkin, et al., 2005).

A teacher’s academic ability—evidenced by teacher tests, has been identified as an indicator for teacher quality. Goldhaber (2007) found that North Carolina teachers who scored in the top quintiles on the Praxis II Curriculum test appear to be significantly more effective at producing student achievement for different types of students. Teacher test scores have also been positively related to student achievement, particularly for math (Clotfelter, et al., 2006). The findings suggest that teacher test performance is indicative of teacher effectiveness.

Impact of Turnover on Student Achievement

There is a growing body of literature demonstrating that teachers “sort” very unequally across schools. The least experienced teachers and those with the poorest
academic records are often found in schools with the highest concentrations of low-income, low-performing and minority students (Clotfelter et al., 2006). “High-need students are taught by teachers with the weakest credentials, such as certification status and exam scores, SAT scores, ranking of undergraduate college, and perhaps most importantly, teaching experience” (Boyd, Lankford, et al., 2007, p. 2).

Teacher turnover plays a major role in the shortage of highly qualified classroom teachers, particularly in difficult to staff schools (Hanushek, et al., 2004; Ingersoll, 2001, 2003). Studies also indicate that urban and rural low socioeconomic schools, which are typically difficult to staff, are disproportionately impacted by teacher turnover. These schools and students are subjected to a continuous stream of inexperienced and less qualified teachers, raising serious equity issues in light of teacher quality research (Boyd, et al., 2002, 2005; Darling-Hammond, 1999; Villegas, & Clewell, 1998).

When teachers leave they take their knowledge of the students, their families, and the practices of the school with them. The loss of school specific, accumulated knowledge compromises the school’s capacity and ability to do its work. The most at-risk populations typically experience the greatest impact from teacher turnover and inexperienced teachers, which perpetuates a cycle of unequal access (Johnson, 2006).

**Hiring Practices**

Similar to other professions, the initial years in teaching are a time of higher attrition as individuals determine whether or not they have a good fit with their school organization. New teachers are assessing the fit of their new profession and acclimating to what for many is unfamiliar terrain—different racial, ethnic, socioeconomic backgrounds, and geographical location. Administrators are also making retention decisions about new teachers as they assess whether the individual fits within the
culture of the organization (Schein, 2004). Attrition takes on added significance because of the skill and knowledge that new teachers must acquire within their first years of experience (Elfers, et al., 2006; Kristof, 1996; Lankford, Loeb, & Wyckoff, 2002).

Well-planned, supportive hiring practices can increase the likelihood of a good match between a new teacher who has individual skills, knowledge, and talents, and a school with its unique set of challenges and opportunities (Liu & Johnson, 2006). Supportive hiring practices are identified as (a) school-based, to ensure exposure to the culture and needs of the school; (b) information rich, to provide multiple opportunities for gathering information from interviews and observations; and (c) having early hiring timelines, to allow ample time for the new teacher to prepare (Johnson, Kardos, Kauffman, Liu, and Donaldson, 2004).

Research in organizational behavior and management provides support for the value of ensuring person-organization and person-job fit (Cable & Judge, 1996; Kristof, 1996). A poor match may impact a teacher’s sense of efficacy, job satisfaction, and ultimately retention. “To the extent that a poor fit compromises a new teacher’s effectiveness on the job and therefore her sense of success, it may contribute to her leaving her school or exiting teaching altogether” (Liu & Johnson, 2006, p. 325).

Hiring is a two-way process and the extent to which there are opportunities available for the interviewers and interviewees to learn enough about the other to make informed decisions has important consequences (Pounder & Merrill, 2001). In a study of teacher hiring in four states, Liu and Johnson (2006) found that most teachers had limited interactions with school-based personnel. Few schools provided or required
classroom observations or teaching demonstrations, each of which could yield valuable information pertaining to job fit (Breaugh & Starke, 2000).

The timing of hiring decisions is a major obstacle for principals. Union contracts, budgeting processes, and student enrollment information, all delay hiring of new teachers until the summer months and even after the school year begins. Urban schools consistently miss out on qualified teachers willing to teach in challenging school settings as a result of the delays in hiring. Lengthy recruitment periods and delays in contacting candidates sends mixed messages and often results in the loss of the most attractive applicants (Levin & Quinn, 2003; Rynes, Bretz, & Gerhart, 1991).

**Job Choice Theory**

School district human resource departments and school administrators work hard to meet the challenge of staffing their classrooms with highly qualified teachers year after year. These staffing challenges result not only from a shortage of qualified teachers, but also because many new recruits leave within a short time of hire (Ingersoll, 2001). It is important that employers consider post-hire outcomes such as retention rates, performance, and job satisfaction at the beginning of the hiring process as part of their recruitment objectives. The way employers recruit can influence post-hire outcomes (Breaugh & Starke, 2000).

The organizational behavior and management research literature provides employers with insight into how job choice, organization fit, and job fit theories can help inform their pre and post-hiring activities. Job choice theory provides a conceptual framework within which to consider job selection behavior. Behling, Labovitz, and Gainer (1968) originally conceptualized job choice theory in their work with recruiting college graduates. The theory was later used in educational settings with teachers and
administrators (Young, Rinehart, & Place, 1989; Pounder, Merrill, 2001). Behling, et al. (1968) proposed three separate theories of job choice: objective theory, subjective theory, and critical contact theory.

Objective theory posits that candidates seek to maximize their economic status and make job decisions based on economic factors such as pay, benefits, advancement prospects, and other factors, which are objective and measurable. In contrast, subjective theory states that job choice is determined based on the candidate’s perception as to whether the organization will meet his or her psychological needs. The choice of one school or district over another might therefore be influenced by the organizations’ climate and culture (Liu & Johnson, 2006; Pounder & Merrill, 2001; Schein, 2004).

Critical contact theory proposes that candidates usually have limited knowledge and contact with the hiring organization. Job choice decisions are therefore made based on the initial contact with the recruiter. The recruiter’s knowledge and ability to communicate the specific job requirements and expectations influences the candidate’s job choice decision (Young, et al., 1989). Candidates prefer information that conveys a realistic view of the job and connect with representatives who are personable and credible (Breaugh & Starke, 2000).

**Realistic Job Previews**

Employers who are concerned with post-hire outcomes such as job satisfaction, performance, and retention ensure that candidates have an accurate perception of the job responsibilities and expectations. Providing descriptions of both positive and negative aspects gives an information rich, realistic job preview, which tempers unrealistic or inflated candidate expectations. It is important that candidates also have
an accurate perception of their own abilities and aspirations (Breaugh & Starke, 2000; Johnson, et al, 2004; Popvich & Wanous, 1982). “However well prepared and committed they may be, teachers have no assurance that they will succeed in the classroom because teaching, by its very nature, is unpredictable work” (Johnson & Birkeland, 2003, p. 584).

Realistic job previews in which candidates visit the job site—the school, and have the opportunity to talk with individuals who currently hold the position increase the probability of the applicants’ job expectations being met. Less informed applicants tend to have less job satisfaction and may be more likely to quit (Breaugh & Starke, 2000; Meglino, Ravlin, & DeNisi, 2000). Unfortunately, many teachers are often hired after a single interview and accept positions for which they are unprepared (Liu & Johnson, 2006).

**Person-Organization Fit Theory**

Broadly defined, person-organization fit is the compatibility between a person and an organization. This compatibility occurs when, “(a) at least one entity provides what the other needs, (b) they share similar fundamental characteristics, (c) both” (Kristof, 1996, p 4). We know that teacher attrition varies a great deal based on the differences in teachers, their subject areas, and the schools where they are hired (Hanushek, et al., 2004; Ingersoll, 2003; Johnson, Berg, & Donaldson, 2005). People are attracted to organizations whose goals are similar to their own or will enable them to attain their personal goals. A better match between the prospective teacher and the teaching job has implications for job satisfaction, efficacy, and retention.

Individuals are also attracted to an organization’s culture, climate, and values. Values congruence is a significant form of fit. Values are fundamental to organizational
culture and guide employee behavior. Principals who consider fit when hiring teachers increase the likelihood of maintaining a stable faculty, and fulfilling the mission of the school. An individual is more likely to stay if the environment meets his or her needs; conversely individuals with low levels of congruence with the needs, values and culture of the school are more likely to leave (Cable & Judge, 1996; Judge, Higgins, & Cable, 2000; Kristof, 1996; Schein, 2004).

A good match or fit takes on additional importance when recruiting and retaining second career individuals who may have other career options available to them. These are important considerations when recruiting teachers for high-need schools and have implications for retention and ultimately student achievement (Dai, et al. 2007; Liu & Johnson, 2006).

Summary

The teacher labor market reflects a history of shortages in high need subject areas. In many districts principals have turned to other sources to fill these vacancies, hiring under-certified teachers and those who come to teaching through alternative certification routes. These practices are most evident in districts with high poverty urban and rural schools.

A complex range of factors including legislative mandates, inadequate supply, and turnover has been identified as contributing to teacher shortages. Although there are differing perspectives as to whether teacher supply or retention is the underlying cause of teacher shortages, it is important to understand that the impact at the school level is the same. Consequently, holistic efforts targeting both supply and retention are needed to address the ongoing shortages. Working conditions, personal characteristics, and individual qualifications all play important roles in both recruitment
and retention efforts. Therefore, the availability of high quality traditional and alternative teacher preparation programs, information rich hiring practices, and retention program initiatives take on added importance.

In addition to subject area assignments, personal and school characteristics can be predictors of teacher retention. School characteristics such as poverty level, the percentage of minority students, and geographic location influence both recruitment and retention of non-minority teachers. Alternative certification route programs have proven successful in recruiting a more diverse pool of prospective teachers who are willing to teach high need subject areas in high poverty schools, which typically have a greater population of minority students.

Well-designed alternative certification route programs that have rigorous selection criteria, strong training, and support can produce competent teachers. However, many alternative routes are fast-track programs that move teachers into the classroom quickly with minimal supports. The use of fast-track programs and the practice of hiring under certified teachers raise serious issues of equity for the students of these teachers. Despite the fact that teacher quality is one of the most important factors impacting student achievement in the classroom, we find that the least experienced and least qualified teachers are teaching in high-need settings.

The organizational behavior and management literature regarding person-organization fit and job fit provides principals with insight about teachers who are more likely to stay, as well as those who are most likely to leave. Understanding the personal and school characteristics that can serve as predictors for teacher retention can inform hiring decisions and post-hiring outcomes. Principals who consider fit and preparation
when hiring teachers may increase the likelihood of maintaining a stable faculty and positively impacting student achievement.
CHAPTER 3
METHODOLOGY

The purpose of this chapter is to discuss the research design used to study the retention of special education teachers in a large urban school district. The overarching goal of the study was to ascertain who stays, who leaves, who returns, and why. Developing a greater understanding of teachers who are more likely to be retained in special education assignments has important implications for recruitment, training, and retention. This chapter explains how the study was conducted. First the quantitative research design is discussed, next the setting and context are described, the sample selection is explained, and finally data sources and variable definitions are provided. A discussion of the data analysis follows.

The research questions guiding this study were:

1. Does the risk of leaving teaching differ with respect to a special education teacher’s personal characteristics?

2. Does the risk of leaving teaching differ with respect to a special education teacher’s level or type of teacher preparation?

3. Does the risk of leaving teaching differ with respect to a special education teacher’s school assignment (percentage of poverty and minority student enrollment)?

4. Does the risk of leaving teaching differ with respect to a special educator’s teaching assignment (students’ disability classification)?

5. How many years on average do newly hired special education teachers continue to teach in a large urban school district?

6. What is the probability of a special education teacher returning to teaching after leaving?
Research Design

This quantitative study provided descriptive data on a sample of special educators hired during three academic years from July 1, 2003 through January 30, 2006. The demographic data on the teachers’ age, gender, and race were recorded. In addition, the level and type of teacher preparation for each educator was identified, and any previous teaching experience was noted. Data describing the school assignment demographics and teaching assignment details were also collected. The study tracked the career history of the special education teachers for a period of six years ending June 30, 2009. The resulting data provided a rich source of information for analysis. Frequency tables were used to summarize the categorical data and provide descriptive statistics about the sample.

The focus of this study centered on event occurrence—whether a teacher leaves or returns to teaching and, if so, why. Researchers have identified survival analysis or event history analysis as a useful method for investigating event occurrence and identifying event predictors (Allison, 1982; Singer & Willett, 2003; Willett & Singer, 1993). The survival analysis model requires three methodological features. First, the study must have a target event, one whose occurrence is recorded. Second, a starting time is required, and third, there must be a meaningful scale for measuring time when recording event occurrence.

Event occurrence is defined as moving from one state to another state i.e., a teacher is either teaching or not teaching. Survival analysis requires that states not overlap, and that an individual occupy only one state during the period of study. Once the event does occur the individual moves to another state, which in this study was identified as a spell (Singer & Willett, 2003).
Time scales for event occurrence can be classified as either continuous or discrete. This distinction is important given that the methods applied to continuous time may not apply to discrete time. The use of continuous time as a measurement scale requires that the exact time of event occurrence is known or that the interval is small enough that it can be considered continuous. Discrete time can be accounted for in two ways. The event occurrence may happen at any point during the time interval or period being measured, or the event may occur at discrete points in time during the time interval. Graduation and student retention at the end of a school year are examples of situations when discrete time would be an appropriate time scale. Discrete time analysis is appropriate for studying time intervals in which many individuals will experience the target event in the same period of time (Allison, 1982; Mayson, 2003; Singer & Willett, 2003).

Standard analytic methods are not well suited to dealing with time-varying explanatory variables and missing or censored data, both of which are typical in the study of event history. The use of continuous time or discrete time analysis can address these problems and have proven to be useful tools for studying event history. Censoring occurs when an individual in the study does not experience the target event or is unaccounted for by the time the study ends. It is not possible to know when the individual will experience the target event, only that they have not experienced it by the end of the study. This is referred to as right censoring. Censored data contributes only partial data to the investigation when using standard statistical methods of analysis (Allison, 1982; Singer & Willett, 2003).
Attempts to account for censoring have included leaving censored data out of the analysis, imputing data such as the average time to event, or using the ending date of the study instead of not counting the person. All of these methods may bias the findings. Survival analysis methods can deal with both known and censored event times thereby providing a more accurate analysis. Censored individuals do contribute important information to the study. The fact that they do not experience the event may provide insight about others who do (Singer & Willett, 2003).

This study utilized discrete time survival analysis to examine special education teacher retention. The longitudinal data provided the opportunity to analyze events in the teachers’ career histories such as leaving or returning to teaching and changing school or teaching assignments. Advantages of the model are that it easily accommodates time-invariant predictors such as age, gender, and race, as well as time-varying predictors such as teaching assignment or school setting. The effects of predictors may also vary over time (Singer & Willett, 2003; Willett & Singer, 1995).

The event history of every individual in the risk set (at risk for experiencing the target event) was divided into spells. Each spell corresponded with an event occurrence. In this study each teacher’s career history was divided into spells that indicated when and if they left teaching, and when and if they returned to teaching. For example, entering the first spell indicated being hired to teach; entering a second spell indicated leaving teaching; entering a third spell indicated a return to teaching, and so forth listing as many spells as necessary to record the repeated events for each teacher during the course of the six year study.
The discrete time metric was an academic year. The choice of an annual metric provided six periods or years to observe event occurrence. A teacher may or may not have experienced the target event within one or more periods (academic years). Only those teachers who left teaching or reentered teaching were shown as moving to the next spell. Teachers who were hired to teach during the three-year period from July 1, 2003 through January 30, 2006, and who did not leave teaching at any time during the data collection period that ended June 30, 2009, were censored.

This survival analysis used SAS programming (version 9.2, Cary, N.C.) to conduct the tests and analysis necessary to address the research questions. The SAS LIFETEST Procedure provided life tables and survival curves that were used to summarize and examine the event occurrence data. The SAS Product-Limit Survival Estimates table provided data for the following: observed event time, estimate of the survivor function, estimate of the cumulative distribution function of the failure time, survival standard error, number of observed event times, and the number of event times that remain to be observed.

The observed event time indicated which year the teacher left teaching or returned to teaching. The survivor function provides another way to illustrate event occurrence data by aggregating the period-by-period risk of the event not occurring. This probability showed what percentage of teachers survived or were still teaching at the end of each successive time period, for example, by the end of year one, by the end of year two, and so on until the end of the sixth year of data collection. The cumulative distribution function of the failure time or hazard function identified the chronological
pattern of the probability of teachers in the risk set experiencing the event of interest. It tells us whether and when an event occurs.

The life-table provided the data necessary to determine the median lifetime or center of the distribution data. It showed the point at which approximately half of the sample had experienced the target event and half have not. The median lifetime statistic answers the question—how long does the average teacher teach (Singer & Willett, 2003).

Summarizing the event occurrence data provided information regarding how long the sample teachers stayed in teaching. The data also indicated whether teachers returned to teaching after a period of time. These data however, did not help answer why they returned, which is important information for developing retention and support programs. Determining why some teachers left teaching or returned to teaching required a statistical model that would identify the relationships between the event occurrence and predictor variables. After examining the survival distribution function graphs, log-rank and Wilcoxon tests were used to test for significant differences (Singer & Willett, 2003; Willett & Singer, 1993, 1995).

**Setting and Context**

This study was conducted in a large urban school district in the State of Florida. The district currently serves approximately 125,000 students and employs over 8,000 teachers, of which approximately 900 are special education teachers. The district’s challenges are typical of many other large urban school districts: high poverty, a persistent achievement gap between the minority and majority student populations, high failure rate, and a graduation rate that is less than the state average (Villegas & Clewell, 1998).
The district’s student population is diverse. The 2007 demographic information posted on the Florida Department of Education website listed 56.4% minority, 15.3% exceptional student education, and 4.2% English as Second Language—more than double the percent in 2004. Minority enrollment has also increased steadily over the past five years, both in total number and as a percentage of the total population.

Sample

The sample selected for study included all teachers hired for special education assignments during three consecutive academic years beginning July 1, 2003 and ending January 30, 2006. Collecting data within this timeframe ensured that teachers hired during the summer recruiting season, as well as those hired during the first semester of the school year, were included in the data set. Teachers are often hired after the start of the school year in urban school districts (Levin & Quinn, 2003; Liu & Johnson, 2006). Career histories were documented for six academic years ending June 30, 2009. The sample included 603 special education teachers with a wide variety of demographic and education backgrounds. Frequency tables were developed to summarize and display descriptive statistics for the variables related to the teachers’ personal characteristics and career history data. It is important to note that the district has a three-year transfer policy. Teachers may request transfer to another school after three years of service at the hiring school.

Data Sources and Collection

After requesting and obtaining permission to conduct this study from the University of Florida’s Institutional Review Board and the school district’s Office of Research, Assessment, and Evaluation, the Office of Human Resource Services was contacted to obtain the necessary teacher data. A request for relevant demographic,
education, certification, and job assignment data on the teachers hired for special education assignments from July 1, 2003 through January 30, 2006 was submitted. These data were provided without the teachers’ names. Therefore informed consent was not required. As this protocol did not involve the use of human participants in research, it was exempt from further review.

Statistics for school demographic data were obtained from the Florida Department of Education (FLDOE) website. The percentage of minority student enrollment for the district’s schools was provided for each school year in the data collection period. The percentage of free and reduced lunch participation served as a proxy for poverty level in the schools. These data were also available on the FLDOE website for each school year examined.

**Definition of Variables**

The dependent variable in this study was teacher retention. In Billingsley’s 2004 analysis of the literature on special education teacher retention and attrition, she noted that there are a variety of definitions used for both retention and attrition in the literature. In this study Billingsley’s (1993) four-category definition of retention was used.

In the first category, retention pertained to teachers who remained in the same teaching assignment and the same school as the previous year. The second category, “transfers to another special education teaching position,” included those who stayed in special education teaching but transferred to another position (in either the same or a different district). The third category, “transfers to general education teaching,” was of concern because this group reflected a loss to the special education teaching force. The fourth group, “exit attrition,” included those who left teaching altogether—that is, retired, returned to school, stayed home with young children, or took nonteaching positions in education.
In order to understand more about the risk of special education teachers leaving teaching, the study examined relationships among the following variables which may serve as predictors: teacher demographics, level and type of teacher preparation, teaching assignment, and school assignment demographics. The event occurrence data identifying whether and when a teacher leaves or returns to teaching was recorded for the purpose of the discrete time survival analysis. The categories of retention, such as transfers were reflected in the teachers’ teaching assignment and school assignment data.

**School and Teaching Assignment Variables**

The poverty level of the school was determined based on the percentage of students eligible for free and reduced lunch. Federal requirements for Title One designation stipulates that at least 40% of the student body must be eligible for free and reduced lunch in order to qualify for federal funding. However, for the urban district in this study, the cutoff percentage for eligibility was usually not lower than 60%. The district has a range of 60 to 70 public schools designated as Title One from year to year. The categories for the poverty level variable were defined to show low, average, high, and very high levels of poverty.

**School poverty level**

0 = 81% - 97%
1 = 49% - 80%
2 = 26% - 48%
3 = 5% - 25%

The district’s student minority population is 59%, with Black students composing the largest proportion at 44%. The categories for the minority level variable were defined to show low, average, high, and very high levels of minority student enrollment.
The teaching assignments in the district are identified by job code, which are used as proxies for describing the special education teaching assignment. The categories for this study were defined based on similar job responsibilities and whether the teaching assignment was in a special education self-contained classroom or resource room setting. The disability classifications used in the district’s job codes and the attendant settings for service delivery were current at the time of hire. (Inclusive service delivery in the district for students with disabilities was limited during the years for which data were collected.) Special educators’ teaching assignments were coded into three categories.

Teachers assigned to Category 0 taught students considered to have emotional and behavioral disorders (EBD), which were classified previously in Florida regulations as emotionally handicapped (EH) and severely emotionally disturbed (SED). Most students with these disability classifications were taught in self-contained settings with teacher assistants.

Teachers assigned to Category 1 taught students considered to have high-level disability-related needs. Students with intellectual and developmental disabilities were previously classified as mentally handicapped, which included sub-classifications reflected in the job codes as educable (EMH), trainable (TMH), and profound (PMH). Most students with these disability classifications were taught in self-contained settings with teacher assistants; some EMH students were mainstreamed for a portion of the day. Students with physical disabilities, referred to in the job code as PH, were placed...
for instruction according to the level of their support needs. The majority of the district’s students with Autism were taught in self-contained settings with teacher assistants, with the higher functioning students being mainstreamed for a portion of the day.

Teachers assigned to Category 2 taught students with specific learning disabilities (SLD) or students with varying exceptionalities (VE), which included students with EBD and SLD. These students who were taught in either self-contained classrooms or in resource settings designed as pull-out programs in which students left their general education class for a portion of the day to focus on individualized instruction in their designated area of need. The pre-kindergarten special education population was taught in self-contained settings with a teacher assistant.

**Job Code**

0 = EH, SED  
1 = Autistic, EMH, TMH, PMH, PH  
2 = SLD, VE, Resource, Pre-KH  
3 = General Ed  
4 = District Resource/ Counselor

**Teacher Preparation Variable**

Teachers with degrees in a field of special education or general education typically receive more extensive preparation through field experience and practice teaching required by the traditional programs. These programs are defined as approved teacher education degree programs, which lead to eligibility for a standard teaching credential. Individuals entering education from other fields pursue teacher certification through alternative routes defined as preparation pathways that provide streamlined programs, special assistance, or unique curricula leading to eligibility for a standard teaching credential.
Teacher Preparation

0 = Incomplete or no prior teacher preparation (degree major in field other than education/ hired under temporary certificate)

1 = Special education preparation (special education degree major or special education apprenticeship program requiring extensive field experience)

2 = General education teacher preparation (college of education degree major other than special education)

Data Analysis

The sample special education teachers’ demographic information, academic background, certification status, teaching assignment, school assignment, years of experience, and employment status for each of the six years studied were compiled. The level of teacher preparation for each teacher was determined based on their degree major. Teachers with special education degree majors were coded as “1” for having more extensive preparation, teachers with college of education degree majors other than special education were coded as “2” for high level of preparation. The sample data were compared to the district’s Alternative Certification Program database to determine which teachers were enrolled in or had completed the district program. These teachers had been issued temporary certificates to teach special education. The Florida Department of Education provides individuals who have the minimum of a bachelor’s degree (in any field) who pass the state’s licensing subject area exam for K-12 Exceptional Education, eligibility to receive temporary certification (FLDOE Certification). These special education teachers were coded “0” for minimal level of teacher preparation. Further comparison of the data with the district’s Transition to Teaching program database identified the teachers who had completed a year-long exceptional student education apprenticeship program. This certification program
required both coursework and on-the-job training while assigned to work with a veteran special education teacher. These teachers were coded “1” for extensive teacher preparation. All other special education teachers with a degree major in a field other than education hired under a Florida temporary teaching certificate were coded as “0” indicating minimal preparation.

The school assignment demographic data were collected from the FLDOE Florida Schools Indicator Reports. These annual reports identify the percentage of minority student enrollment and the percentage of students participating in a free and reduced school lunch program, which serves as a proxy for poverty level (FLDOE, 2009).

**Person-Period Data Set**

In order to summarize the special education teachers’ data and the event occurrence of interest (entering or leaving teaching), the longitudinal data set was transformed into a person-period data set. The data set has separate records or rows for each sample teacher and every academic school year in which they were at risk of experiencing a target event. Data were collected for teachers hired during the following timeframes: July 1, 2003 through January 30, 2004; July 2004 through January 30, 2005; and July 30, 2005 through January 30, 2006. The beginning date for each teacher was represented by the year of hire variable which indicated the first year or discrete-time period that they were at risk of experiencing a target event. The data set included a spell variable and a period variable to specify the number of school years a teacher remained in or out of teaching. The event variable indicated whether the event of interest had occurred, a “0” indicated no event occurred, and “1” indicated the event did occur—either the teacher left or returned to teaching.
Table 3-1 is an example of the person-period table and contains records for the first three teachers in the sample. The person-period data set contains demographic information for each teacher, the level and type of teacher preparation, the school teaching assignment, which indicates exceptionality, and the school assignment characteristics. The spell describes the length of time in or out of teaching and coincides with the occurrence or event of interest. The period variable indicates the number of years within each spell.

Table 3-1 shows that teacher 1 left after the first year in teaching and did not return. Teacher 2 spent two years in teaching interrupted by one year out of teaching. Teacher 3 taught 2 years, left teaching and then returned. Teacher 3 was still teaching at the end of data collection and was censored. Therefore, it is unknown whether and when the teacher left teaching.

Once the person-period table was constructed, SAS programming (version 9.2, Cary, N.C.) was used to analyze the data. Frequency tables were created to describe the data set and provide descriptive statistics for each variable of interest. The SAS FREQ procedure was conducted to provide data on the frequency and percentage of special education teachers who experienced the event of interest specific to each variable. Univariate analysis was conducted using chi-square testing to identify variables that demonstrated a relationship with teacher retention and warranted further analysis. After identifying the significant variables, the next step was to conduct the survival analysis.

The SAS LIFETEST Procedure was conducted using the variable of time to build a life table and provide survival estimates for the sample teachers and a baseline with
which to compare other variables of interest (Singer & Willett, 2003; Willett & Singer, 1995). The SAS Product-Limit Survival Estimates table tracked the career history of the sample of special education teachers for the six-year data collection period. Data were provided for the estimate of the survivor and hazard function, as well as the survival standard error. The number of observed event times and the number of event times that remain to be observed provided the data necessary to determine the median lifetime or center of the distribution data. It showed the point at which approximately half of the sample had experienced the target event and half had not. The median lifetime statistic answers the question—how long does the average teacher teach (Singer & Willett, 2003).

In order to understand more about why some teachers leave teaching and some stay, it was necessary to determine whether the probability of event occurrence differed systematically among the special education teachers. Did the risk of leaving vary according to age, race, or gender? Were special educators who completed traditional teacher training programs retained at a higher level than those who become certified through an alternate route? What were the variables that predicted a greater risk for leaving teaching? Statistical models were used to test these relationships. The SAS Survival Analysis provided the within group survival distribution function which plotted the survival data and displayed the effects of the predictor variable which assisted in the analysis and communication of findings.

In order to determine whether the special education teachers’ risk differed significantly with regard to the predictor variables the LIFETEST Procedure was used to provide the Test for Equality over Strata (variable), which produced log-rank and
Wilcoxon significance test results (Allison, 1982; Singer & Willett, 2003; Willett & Singer, 1995). These tests were conducted for each of the variables of interest providing the necessary data to address the study’s research questions, as well as raise additional questions for further research.

**Summary**

This chapter explains the discrete time survival analysis research design used to study the retention of special education teachers in a large urban school district. The overarching goal of the study was to discover who stays, who leaves, who returns, and why. The rationale for using the survival analysis methodology and the conceptual application has been discussed in relation to the research questions. This chapter provides details regarding the sample, data sources, data collection, and an overview for data analysis. The next chapter will present details regarding the analysis and findings.
Table 3-1. Person-period data set

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</table>

Note. Example of the person-period table containing records for the first three teachers in the sample. Teacher 1 left after the first year in teaching and did not return. Teacher 2 spent two years in teaching interrupted by one year out of teaching. Teacher 3 taught 2 years, left teaching and then returned. Teacher 3 was still teaching at the end of data collection.
CHAPTER 4
ANALYSIS AND RESULTS

This chapter presents the results of an analysis of retention behavior for a sample of special education teachers over a period of six years. Data regarding the personal characteristics and the school teaching assignments of the sample special education teachers who stayed in teaching and those who left were examined in an effort to understand more about the teachers who are successfully retained in a large urban school district. A description of the sample is provided and descriptive statistics are given for the variables of interest. The research questions are addressed throughout the discussion of the study results.

Description of Sample

The sample selected for this study included all teachers hired for special education assignments in a large urban school district over the course of three consecutive academic years, beginning with the 2003-04 academic year and ending with the 2005-06 academic year. The teachers’ career histories were documented for six academic years with an ending date of June 30, 2009. The sample captured a total of 603 special education teachers and represents individuals with a variety of education backgrounds and demographic representations.

Personal and career history data were documented for each teacher. The personal characteristics examined were race, gender, and age. Any prior teaching experience was also recorded. Data reflecting each teacher’s level of teaching preparation were collected according to three categories (a) no prior training, (b) having a degree major in special education, or (c) having a degree major in general education.
The data reveal a sample that is mostly female (77%) with a racial demographic that is almost evenly split between white teachers (53%) and minority teachers (41% Black, 6% Hispanic, Asian or American Indian). The ages of the teachers ranged from 25 to over 56. Although the highest percentage of the teachers hired fell in the 25-35 age range (35%), the majority were 36 and older.

The data on prior teaching experience showed that 67% of the teachers had less than three years teaching experience and 49% were teaching for the first time. The remaining teachers captured in the sample had previous teaching experience and were returning to teaching after an unspecified amount of time out of teaching. The data show that 54% of the special education teachers hired held degrees in subject areas other than education and had no teacher preparation. There were 34% of the teachers who had more extensive special education preparation and 12% who had more extensive preparation in general education. Table 4-1 provides a breakdown of these invariant teacher characteristics.

An examination of the data with regard to the level of teacher preparation provided additional details about the characteristics of the sample teachers. Male teachers comprised 12% of the teachers trained in special education, 24% of those prepared for general education, and 30% of the teachers who entered teaching with no preparation. Higher numbers of minority teachers entered teaching from fields other than education. And over half (56%) of the first year teachers entered with no prior preparation. The data show very similar initial school and teaching assignments for teachers regardless of the level or type of preparation. Table 4-2 provides descriptive data on the level and
type of teacher preparation, teacher personal characteristics, school assignments, and teaching assignment characteristics.

The school assignment characteristics for the sample teachers were documented. The poverty and minority composition of the student population were also recorded each year for each teacher. These data showed that 60% of the teachers were hired to teach in schools with the highest levels of poverty—where 49% to 97% of the student population received free and reduced breakfast and lunch. Schools with a high minority population also tend to have high levels of poverty. The data show that of the sample teachers hired, 72% were assigned to the schools where 50% to 100% of the student population was minority. Table 4-3 provides data on school assignment. An examination of the data showed that 51% of the Black teachers were hired in schools with 70% - 100% minority population, whereas 28% of the White teachers were hired in these schools. Table 4-4 provides a breakdown based on teacher race and school minority level.

Data were also collected on the teaching assignments, as identified by the disability classification of the students each teacher was assigned to teach. Seventy-one percent of the teachers were hired for teaching assignments in Category 2, which included working with students with specific learning disabilities, varying exceptionalities, and also prekindergarten students with disabilities (see job code and category descriptions in Chapter 3). Twenty-two percent of the teachers were hired for teaching assignments in Category 1, which included students with Autism and students with intellectual and developmental disabilities previously classified as educable, trainable, and profoundly handicapped. The smallest number (7%) of the teachers was
hired for teaching assignments in Category 0, working with the population of students
previously classified as emotionally handicapped and severely emotionally disturbed.

**Research Questions**

The following research questions were addressed in this study:

1. Does the risk of leaving teaching differ with respect to a special education
   teacher’s personal characteristics?

2. Does the risk of leaving teaching differ with respect to a special education
   teacher’s level or type of teacher preparation?

3. Does the risk of leaving teaching differ with respect to a special education
   teacher’s school assignment (demographic composition and academic
   performance indicators)?

4. Does the risk of leaving teaching differ with respect to a special educator’s
   teaching assignment (students’ disability classification)?

5. How many years on average do newly hired special education teachers continue
   to teach in a large urban school district?

6. What is the probability of a special education teacher returning to teaching after
   leaving?

**Predictor Variables**

The variables identified for this study represented both invariant characteristics
specific to each teacher and variables that were specific to each school and job
assignment, which could vary from year to year. Each variable was examined in order to
determine whether it could serve as a predictor for teachers who may be at risk for
leaving teaching. Chi-square statistical analysis was used to identify the variables that
demonstrated a relationship with teacher retention behavior—whether and when the
teachers left or returned to teaching.
Teacher Characteristics

The following research questions regarding teacher characteristics: (a) Does the risk of leaving teaching differ with respect to a special education teacher’s personal characteristics, and (b) Does the risk of leaving teaching differ with respect to a special education teacher’s level or type of preparation were addressed using SAS programming (version 9.2, Cary, N.C.).

The SAS FREQ procedure was conducted to provide data on the frequency and percentage of all sample teachers who stayed and those who left teaching specific to each variable of interest. A univariate analysis was then conducted for each predictor variable to determine whether it should be included in further analysis. Chi-square statistics were run to determine whether the probability of special education teachers leaving or returning to teaching differed with respect to the teachers’ personal characteristics or level of teacher preparation.

Research question 1: Does the risk of leaving teaching differ with respect to a special education teacher’s personal characteristics?

The variables of gender, race, age, and prior teaching experience were examined. The chi-square statistic showed that the probability of a teacher leaving teaching did not differ with respect to teacher gender, $X^2 (1, n = 603) = 0.57, p = 0.45$; or race, $X^2 (4, n = 603) = 1.94, p = 0.75$. These variables were not considered for further analysis. Table 4-5 provides statistics for gender and race.

However, the chi-square statistic indicated that the age variable did impact the risk of the special education teacher leaving teaching, $X^2 (3, n = 603) = 10.44, p = 0.02$. The youngest teachers, age 25 - 35, left at the highest rate (70%) after their first year of teaching. The rate decreased with age until teachers reached the age range of 56+, at
which point the rate increased to 65% leaving. Table 4-6 provides data on the percentage of teachers who stayed and who left teaching in each age range category.

The personal characteristic of prior teaching experience also had a statistically significant relationship with the teacher’s risk for leaving, \(X^2 (6, n = 603) = 19.10, p = 0.00\), indicating that early career teachers leave teaching at a higher rate. The percentage of teachers leaving teaching spiked again for teachers with 6 to 10 years of prior teaching experience upon hire. Table 4-7 provides information on the teaching experience categories and the percentage of teachers who stayed and those who left teaching during the collection period.

**Teacher Preparation**

The variable of teacher preparation was examined. Three categories were identified (a) incomplete or no prior teacher preparation, (b) more extensive preparation in special education teaching, and (c) more extensive preparation in general education teaching. The special education teachers, who had no prior teaching preparation, were hired based on successful completion of required subject area examinations and allowed to complete certification requirements as they taught. Teachers with more extensive preparation held education degree majors in either special education or another education field.

**Research question 2**: Does the risk of leaving teaching differ with respect to a special education teacher’s level or type of teacher preparation?

The level or type of teacher preparation was not shown to impact the probability that the teacher would leave teaching. The chi-statistic \(X^2 (2, n = 603) = 1.66, p = 0.44\), indicated no significant difference in teachers leaving or staying in teaching relative to their level of teacher preparation. Table 4-8 provides a breakdown of teacher
preparation level and percentages for teachers staying and those leaving after their first year of hire. Over 50% of the sample special education teachers hired had incomplete or no prior preparation for teaching special education students. This category of teachers stayed in teaching at rates similar to the teachers with more extensive preparation in teaching.

**School Assignment**

Data regarding the sample teachers’ school assignments were recorded each year of data collection. The characteristics of the school demographics were examined to determine whether the probability of leaving teaching differed with respect to placement. The percentage of minority student enrollment and percentage of students qualifying for free and reduced breakfast and lunch were identified and documented for the schools assigned.

**Research question 3:** Does the risk of leaving teaching differ with respect to the school assignment’s demographic composition?

The chi-square statistic, $\chi^2 (3, n = 603) = 3.94, p = 0.27$, indicated that the occurrence of higher percentages of minority students did not significantly impact the risk of teachers leaving. Table 4-9 provides data on the percentage of minority students in the school population and the percentage at which teachers stay or leave after their first year of hire.

Data on the socioeconomic level of the school assignment were also collected. The percentage of students eligible for free and reduced lunch programs served as a proxy for the poverty level of the schools. The chi-square statistic, $\chi^2 (3, n = 603) = 1.68, p = 0.64$, showed that the poverty level variable did not influence the risk of sample teachers leaving teaching. Table 4-10 provides data on the poverty level of the
student population and the percentage at which teachers stay or leave after their first year of hire.

The nature of the teaching assignment was examined to determine whether the risk of leaving differed with respect to the type of exceptionality of the students taught. Common job responsibilities were used to group job assignments into five categories. Three of the five were specific to special education assignments that varied from self-contained settings to pullout resource programs (categories 0-2). Although all of the sample teachers were hired to fill special education assignments, after their first year some teachers changed to general education, counseling, or district positions (categories 3-4).

**Research question 4:** Does the risk of leaving teaching differ with respect to the special education teaching assignment?

The chi-square statistic, $\chi^2 (2, n = 603) = 1.00, p = 0.60$, indicated that the teachers who left did not differ with regard to their special education teaching assignment. Table 4-11 provides statistics on the percentage at which teachers stay or leave after their first year of hire for each of the exceptionality assignment categories.

However, a variable that did demonstrate a highly significant relationship with teacher retention was job change, $\chi^2 (1, n = 603) = 24.81, p = 0.00$. The teachers who moved from one job assignment to another left teaching at a much lower rate than the teachers who stayed in their same job assignment. Table 4-12 shows that 72% of the teachers who did not change their teaching assignment left teaching, while 52% of the teachers who did change their assignments left teaching.
Descriptive statistics for the 218 teachers who stayed in teaching for the duration of the data collection period indicated that 47% did not change special education teaching assignments and 24% changed from special education to general education assignments. The remaining teachers changed special education teaching assignments or left for district level positions. Table 4-13 provides a frequency distribution of the teaching assignment and school assignment changes.

The finding that teachers tended to stay in teaching if they changed jobs prompted an analysis of whether the change was related to the teachers’ type of preparation. The chi-square statistic, \( \chi^2 (2, n = 603) = 0.66, p = 0.72 \) indicated that there was no relationship between the teachers type of preparation and the probability of changing teaching assignments. Table 4-14 provides data on the percentage of teachers who changed jobs after their first year of hire.

Survival Analysis

After identifying the significant variables through statistical analysis, the next step was to conduct the survival analysis. These analyses provided information regarding whether and when teachers stayed, left, or returned to teaching. The findings address the remaining research questions: a) How many years on average do newly hired special education teachers continue to teach in a large urban school district? b) What is the probability of a special education teacher returning to teaching after leaving?

The SAS LIFETEST Procedure was conducted using the variable of time to provide survival estimates for the sample teachers and a baseline with which to compare other variables of interest. Table 4-15 summarizes the distribution of event occurrence, i.e. leaving teaching in the first spell or time in teaching. The time column indicates the metric of time used to identify whether and when the event of interest
occurred, which in this study was an academic year. Each observation was conducted on June 30\textsuperscript{th} of the school year. The Survival column shows the percentage of teachers who survived or were still teaching at the time of the observation. The Failure column indicates the percentage of teachers who left teaching by the time of the June 30\textsuperscript{th} observation each year. The Failure column provides the hazard rate or risk of teachers leaving by the time of observation. Finally, the Number Failed and Number Left columns show the cumulative data for the number of teachers who left and the number of teachers who stayed over the course of the six-year study.

The spell one survival analysis showed a 71\% probability that a teacher would survive through the first year, 54\% through the second year, and a 44\% probability of surviving through the third year. By the sixth year, there was a 34\% probability of survival. The hazard probability identifies the risk for leaving teaching for each year. The analysis showed that there was a 29\% risk that the teacher would not survive beyond the 1\textsuperscript{st} year, a 56\% risk of leaving in the third year, and in the 6\textsuperscript{th} year there was a 66\% risk that the teacher would leave teaching.

It is important to note that censoring began to impact the data in the fourth time period or year of study. The teachers hired in the 2005 - 2006 school year were observed for a period of four years ending with the last observation on June 30, 2009. The 78 teachers who did not leave teaching by the end of data collection were listed as censored, we cannot know whether and when they left teaching.

The SAS Survival Estimates output does not specify the number of teachers censored. The Number Left column reflects the difference. After time period four, 78 were censored, the 72 surviving teachers hired in 2004-05 were censored at the end of
time period five, and the 68 surviving teachers hired in 2003-2004 were censored at the end of time period six. There were 218 (36%) teachers who did not leave teaching by the end of data collection in 2009 and were censored. The survival analysis methodology has the advantage of the hazard function, which takes these censored teachers into consideration. The hazard function is computed on each year’s risk set, which includes all the teachers who have not left teaching up to the time of observation.

**Research question 5:** How many years on average do newly hired special education teachers continue to teach in a large urban school district?

The summary statistics on the time variable for teachers in their first spell of teaching showed the median survival time for the sample teachers was 3 years (95% CI = 2.0 to 3.0), indicating that at the year 3 observation, half of the teachers remained in teaching and half had left. The median survival statistic is the result of a skewed distribution. It has a lower bound but not an upper bound, indicating that the average teaching time would be longer. The mean survival time indicated the average number of years teachers continue to teach $M = 3.43$, $SE = 0.09$. It was noted that the mean survival time and its standard error were underestimated because the largest observation was censored and the estimation was restricted to the largest event time.

The SAS Survival Distribution Function demonstrates the probability of the sample teachers continuing to teach through each period or year of data collection, from year one through year six. The use of time as the variable provided a baseline with which to compare how other variables of interest differ. The survival curve in figure 4-1 provides a visual representation of the data to assist with the communication of the findings.
Teacher Characteristics

The initial analysis of teacher characteristic variables indicated that there was a relationship between the special education teacher having prior teaching experience and staying in teaching. A survival analysis provided data showing that teachers with prior experience upon hire tended to stay in teaching at a higher rate than those with no prior experience. Table 4-16 shows the number of teachers who left teaching, or *Failed* at each level of prior experience. The Censored column shows the number of teachers who did not leave teaching during data collection. Teachers in their first and second year of teaching were retained at similar rates. Teachers with three to five years experience stayed at higher rates. With the exception of stratum 5, which is comprised of teachers with 6 - 10 years of prior teaching experience, the percentage of teachers who stayed in teaching increased with the level of prior teaching experience. The survival curve in figure 4-2 provides a visual representation, which shows that the probability of teachers with prior teaching experience staying in teaching increases over time.

Both the log-rank and Wilcoxon tests demonstrated a significant difference in survival experience among teachers with varying levels of prior teaching experience. The rank tests for homogeneity indicate a significant difference among the sample teachers with regard to experience and staying in teaching, $p = 0.01$ for the log-rank test and $p = 0.01$ for the Wilcoxon test.

Initial variable analysis also identified teacher age as having an impact on the probability of leaving teaching. Further examination of the age variable through survival analysis showed that there was no statistically significant relationship. Both the log-rank, $p = 0.08$ and Wilcoxon, $p = 0.39$, tests demonstrated no statistically significant
difference in survival experience among teachers of differing age during the period of data collection. Although not statistically significant, the data indicated that teachers did tend to stay in teaching as age increased with the highest retention in the 46-55 age range. This drops off as teachers enter the 56+ age group.

**Change Variable**

Change in teaching assignment was not initially considered for analysis. However, during the analysis of the school assignment variables and their relationship to retention, change emerged as a variable that should be examined. An analysis of change in the teaching assignment showed a statistically significant impact on whether teachers stayed in teaching or left. The teachers who did not experience a change in their teaching assignment were found to leave teaching at higher rate than the teachers who did change. Table 4-17 provides summary statistics for the job change variable. The Failed column represents teachers who left teaching. The Censored column represents the teachers who did not leave teaching prior to the end of data collection.

The survival curve in figure 4-3 provides a visual representation of the teachers who changed exceptionalities or fields. The rank tests for homogeneity of survivor functions across strata indicated a significant difference among the sample teachers with regard to changing job assignments and staying in teaching, $p = 0.00$ for the log-rank test and $p = 0.00$ for the Wilcoxon test. The teachers who changed job assignments stayed in teaching significantly longer than those who do not change assignments. Table 4-4b shows the job change data for the 218 special education teachers who did not leave teaching during data collection.
Research question 6: What is the probability of a special education teacher returning to teaching after leaving?

The sample data show that of the 603 special education teachers studied, 385 teachers left teaching. A total of 126 or 33% of these teachers returned for a second spell in teaching. The SAS LIFETEST Procedure was conducted using the variable of time to provide survival estimates for the sample teachers who returned. Table 4-18 summarizes the distribution of the event occurrence of interest, i.e. returning to teaching for a second spell or time in teaching.

The spell two survival analysis showed a 30% probability that a teacher would return in the first year after leaving, a 31% probability that a teacher would return to teaching by the second year, and a 33% probability that a teacher would return by the third year out of teaching. A total of 259 teachers did not return by the end of data collection and were censored.

The SAS Survival Distribution Function demonstrates the probability of the sample teachers returning to teaching for a second spell in teaching. The time variable provides a baseline with which to compare how other variables of interest differ. The survival curve in figure 4-4 provides a visual representation of the data to assist with the communication of the findings.

Teacher Race

An initial analysis of teacher characteristics and school assignment variables that may be related to a sample teacher returning to teaching yielded only one variable which indicated a relationship. The teacher’s race and returning for a second spell in teaching was statistically significant, chi-statistic $\chi^2 (4, n = 385) = 19.31, p = 0.00$. A survival analysis provided data showing that Black teachers tended to return to teaching
after a period out of teaching at a much higher rate. Table 4-19 shows the number and racial demographic for the teachers who returned to teaching and those who did not return during data collection. Forty-four percent of the Black teachers returned to teaching and 25% of the White teachers returned for a second spell. Stratum three, four, and five show the remaining minority teachers, but are represented by small sample sizes. The survival curve in figure 4-5 shows that teacher race impacts the probability of teachers returning for a second spell in teaching.

Both the log-rank and Wilcoxon tests demonstrated a significant difference for teachers with regard to race. The rank tests for homogeneity indicate a significant difference for the sample teachers with regard to race and returning to teaching, \( p = 0.00 \) for the log-rank and \( p = 0.00 \) for the Wilcoxon test. A review of the descriptive data showed that 26 of the 51 (51%) White teachers who returned for a second spell in teaching were hired in schools with a 50% or higher level of minority students as compared to 48 of the 72 (67%) Black teachers hired in similar schools. For schools where 70% or more of the student enrollment was minority, 13 of the 51 (25%) White teachers who returned were hired as compared to 30 of the 72 (42%) Black teachers.
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</tr>
<tr>
<td>1st year</td>
<td>49</td>
<td>293</td>
</tr>
<tr>
<td>2nd year</td>
<td>10</td>
<td>57</td>
</tr>
<tr>
<td>3rd year</td>
<td>8</td>
<td>50</td>
</tr>
<tr>
<td>4th – 5th year</td>
<td>13</td>
<td>81</td>
</tr>
<tr>
<td>6th – 10th year</td>
<td>11</td>
<td>66</td>
</tr>
<tr>
<td>11th – 15th year</td>
<td>5</td>
<td>31</td>
</tr>
<tr>
<td>16th – 20th year</td>
<td>4</td>
<td>25</td>
</tr>
</tbody>
</table>

*Note.* Three categories of teaching preparation (a) no prior training, (b) having a degree major in special education, or (c) having a degree major in general education. Sample: N = 603, percent reflects rounding
Table 4-2. Frequency table: Descriptive data for teachers with differing types of teacher preparation

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>No prior training</th>
<th>Special education</th>
<th>General education</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>70</td>
<td>228</td>
<td>88</td>
</tr>
<tr>
<td>Male</td>
<td>30</td>
<td>97</td>
<td>12</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>42</td>
<td>138</td>
<td>69</td>
</tr>
<tr>
<td>Black</td>
<td>53</td>
<td>172</td>
<td>23</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>Years of experience</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st year</td>
<td>56</td>
<td>182</td>
<td>44</td>
</tr>
<tr>
<td>2nd year</td>
<td>9</td>
<td>29</td>
<td>11</td>
</tr>
<tr>
<td>3rd year</td>
<td>9</td>
<td>29</td>
<td>6</td>
</tr>
<tr>
<td>4th – 5th year</td>
<td>14</td>
<td>44</td>
<td>13</td>
</tr>
<tr>
<td>6th – 10th year</td>
<td>9</td>
<td>28</td>
<td>14</td>
</tr>
<tr>
<td>11th +</td>
<td>4</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Teaching assignment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EH, SED</td>
<td>8</td>
<td>27</td>
<td>6</td>
</tr>
<tr>
<td>MH, autistic</td>
<td>21</td>
<td>69</td>
<td>23</td>
</tr>
<tr>
<td>SLD, VE, Pre-K</td>
<td>70</td>
<td>229</td>
<td>71</td>
</tr>
<tr>
<td>School poverty percent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>81 – 97</td>
<td>16</td>
<td>53</td>
<td>17</td>
</tr>
<tr>
<td>49 – 80</td>
<td>44</td>
<td>143</td>
<td>40</td>
</tr>
<tr>
<td>26 – 48</td>
<td>26</td>
<td>86</td>
<td>29</td>
</tr>
<tr>
<td>5 – 25</td>
<td>13</td>
<td>43</td>
<td>14</td>
</tr>
<tr>
<td>School minority percenta</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70 – 100</td>
<td>40</td>
<td>131</td>
<td>30</td>
</tr>
<tr>
<td>50 – 69</td>
<td>36</td>
<td>118</td>
<td>32</td>
</tr>
<tr>
<td>30 – 49</td>
<td>16</td>
<td>51</td>
<td>29</td>
</tr>
<tr>
<td>14 – 29</td>
<td>7</td>
<td>23</td>
<td>8</td>
</tr>
</tbody>
</table>

*Note.* No Prior Training N = 325; Special Education N = 207; General Education N = 71

Percents reflect rounding

*aSchool Minority data missing for 2 female teachers with no prior training*
Table 4-3. Frequency table: Descriptive statistics providing the school demographic data where the newly hired special education teachers are assigned to teach

<table>
<thead>
<tr>
<th>School demographic percent</th>
<th>Newly-hired special education teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
</tr>
<tr>
<td>School poverty range</td>
<td></td>
</tr>
<tr>
<td>81 – 97</td>
<td>18</td>
</tr>
<tr>
<td>49 – 80</td>
<td>42</td>
</tr>
<tr>
<td>26 – 48</td>
<td>27</td>
</tr>
<tr>
<td>5 – 25</td>
<td>13</td>
</tr>
<tr>
<td>School minority range</td>
<td></td>
</tr>
<tr>
<td>70 – 100</td>
<td>38</td>
</tr>
<tr>
<td>50 – 69</td>
<td>34</td>
</tr>
<tr>
<td>30 – 49</td>
<td>21</td>
</tr>
<tr>
<td>14 – 29</td>
<td>8</td>
</tr>
</tbody>
</table>

Note. N=603, percent reflects rounding

*aSchool Minority data missing for 2 teachers

Table 4-4. Frequency table: Descriptive statistics of the racial breakdown of the special education teachers and the minority level of their school assignment

<table>
<thead>
<tr>
<th>School minority percent range</th>
<th>White</th>
<th>Black</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>70-100</td>
<td>28</td>
<td>91</td>
<td>51</td>
</tr>
<tr>
<td>50-69</td>
<td>33</td>
<td>106</td>
<td>33</td>
</tr>
<tr>
<td>30-49</td>
<td>28</td>
<td>91</td>
<td>10</td>
</tr>
<tr>
<td>14-29</td>
<td>10</td>
<td>33</td>
<td>5</td>
</tr>
</tbody>
</table>

Note. White N=322; Black N =249; Other N=32 (Asian 10, Hispanic 15, American Indian 7); missing school minority data for 1 White teacher and 1 Black teacher
<table>
<thead>
<tr>
<th>Placement Characteristics</th>
<th>Percent</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Assignment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No change</td>
<td>62</td>
<td>135</td>
</tr>
<tr>
<td>Change</td>
<td>38</td>
<td>83</td>
</tr>
<tr>
<td>Poverty Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No change</td>
<td>63</td>
<td>137</td>
</tr>
<tr>
<td>Low to high</td>
<td>15</td>
<td>33</td>
</tr>
<tr>
<td>High to low</td>
<td>21</td>
<td>45</td>
</tr>
<tr>
<td>Multiple Changes</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Minority Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No change</td>
<td>64</td>
<td>140</td>
</tr>
<tr>
<td>Low to high</td>
<td>21</td>
<td>45</td>
</tr>
<tr>
<td>High to low</td>
<td>13</td>
<td>29</td>
</tr>
<tr>
<td>Multiple Changes</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>Teaching assignment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No change</td>
<td>47</td>
<td>102</td>
</tr>
<tr>
<td>Low to high</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>High to low</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>Special education to General education</td>
<td>24</td>
<td>53</td>
</tr>
<tr>
<td>District level</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>Multiple changes</td>
<td>8</td>
<td>17</td>
</tr>
</tbody>
</table>

*Note. The low to high terminology indicates that the teacher moved from a school with a lower poverty or minority level to a higher poverty or minority level. High to low indicates the inverse. The low to high terminology for teaching assignment indicates that the teacher moved from a setting with students who required a greater number of services to a setting where students required a fewer number of services. District level positions are typically counseling or program resource. Sample: N = 218, percent reflects rounding, missing data for one teacher.*
Table 4-5. Teacher gender and race: Does the sample teachers’ gender or race impact whether they stay in or leave teaching after their first year?

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Staying</th>
<th>Leaving</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>39</td>
<td>54</td>
<td>61</td>
</tr>
<tr>
<td>Female</td>
<td>35</td>
<td>164</td>
<td>65</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>37</td>
<td>120</td>
<td>63</td>
</tr>
<tr>
<td>Black</td>
<td>35</td>
<td>87</td>
<td>65</td>
</tr>
<tr>
<td>Hispanic</td>
<td>40</td>
<td>6</td>
<td>60</td>
</tr>
<tr>
<td>Asian</td>
<td>40</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>American Indian</td>
<td>14</td>
<td>1</td>
<td>86</td>
</tr>
</tbody>
</table>

*Note.* Gender: $X^2 (1, n = 603) = 0.57, p = 0.45$; Race: $X^2 (4, n = 603) = 1.94, p = 0.75$

*Hispanic, Asian, and American Indian teachers are represented by small sample sizes.

Each teacher characteristic for gender and race is a mutually exclusive category and therefore provides one p-value.

*p < .05

Table 4-6. Teacher age: Does the sample teachers’ age impact whether they stay in or leave teaching after their first year?

<table>
<thead>
<tr>
<th>Age range</th>
<th>Staying</th>
<th>Leaving</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>25 – 35</td>
<td>30</td>
<td>63</td>
<td>70</td>
</tr>
<tr>
<td>36 – 45</td>
<td>36</td>
<td>58</td>
<td>64</td>
</tr>
<tr>
<td>46 – 55</td>
<td>46</td>
<td>65</td>
<td>54</td>
</tr>
<tr>
<td>56+</td>
<td>35</td>
<td>32</td>
<td>65</td>
</tr>
</tbody>
</table>

*Note.* Age range: $X^2 (3, n = 603) = 10.44, p = 0.02*

Each age range is a mutually exclusive category of teacher age and therefore one p-value is provided.

*p < .05
Table 4-7. Teaching experience: Does the sample teachers’ prior teaching experience impact whether they stay in or leave teaching after their first year?

<table>
<thead>
<tr>
<th>Prior experience</th>
<th>Staying</th>
<th>Leaving</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>1st year</td>
<td>31</td>
<td>90</td>
<td>69</td>
</tr>
<tr>
<td>2nd year</td>
<td>30</td>
<td>17</td>
<td>70</td>
</tr>
<tr>
<td>3rd year</td>
<td>36</td>
<td>18</td>
<td>64</td>
</tr>
<tr>
<td>4th - 5th year</td>
<td>49</td>
<td>40</td>
<td>51</td>
</tr>
<tr>
<td>6th - 10th year</td>
<td>35</td>
<td>23</td>
<td>65</td>
</tr>
<tr>
<td>11th – 15th year</td>
<td>48</td>
<td>15</td>
<td>52</td>
</tr>
<tr>
<td>16th – 20th year</td>
<td>60</td>
<td>15</td>
<td>40</td>
</tr>
</tbody>
</table>

Note. Teaching experience: $X^2 (6, n = 603) = 19.10, p = 0.00^*$

Each teaching experience category is a mutually exclusive category of prior teaching experience and therefore one p-value is provided.

*p < .05. **p<.01

Table 4-8. Teacher Preparation: Does the sample teachers’ level or type of teacher preparation impact whether they stay in or leave teaching after their first year?

<table>
<thead>
<tr>
<th>Preparation type</th>
<th>Staying</th>
<th>Leaving</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>None</td>
<td>34</td>
<td>111</td>
<td>66</td>
</tr>
<tr>
<td>Special education</td>
<td>40</td>
<td>82</td>
<td>60</td>
</tr>
<tr>
<td>General education</td>
<td>35</td>
<td>25</td>
<td>65</td>
</tr>
</tbody>
</table>

Note. Teaching preparation: $X^2 (2, n = 603) = 1.66, p = 0.44$

Each teaching preparation category is a mutually exclusive category of preparation and therefore one p-value is provided.

*p < .05. **p<.01
Table 4-9. School Minority Level: Does the minority population of the school assignment impact whether the sample teachers stay in or leave teaching after their first year?

<table>
<thead>
<tr>
<th>Minority percent range</th>
<th>Staying</th>
<th>Leaving</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>70 - 100</td>
<td>35</td>
<td>80</td>
<td>65</td>
</tr>
<tr>
<td>50 - 69</td>
<td>33</td>
<td>66</td>
<td>67</td>
</tr>
<tr>
<td>30 - 49</td>
<td>43</td>
<td>53</td>
<td>57</td>
</tr>
<tr>
<td>14 - 29</td>
<td>40</td>
<td>19</td>
<td>60</td>
</tr>
</tbody>
</table>

Note. School minority level: $\chi^2 (3, n = 603) = 3.94, p = 0.27$

Each minority range category is a mutually exclusive category of minority level and therefore one p-value is provided. School minority data is missing for 2 teachers.

*p < .05. **p < .01

Table 4-10. School Poverty Level: Does the level of poverty in the school impact whether the sample teachers stay in or leave teaching after their first year?

<table>
<thead>
<tr>
<th>Poverty range percent</th>
<th>Staying</th>
<th>Leaving</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>81 - 97</td>
<td>36</td>
<td>38</td>
<td>64</td>
</tr>
<tr>
<td>49 - 80</td>
<td>34</td>
<td>85</td>
<td>66</td>
</tr>
<tr>
<td>26 - 48</td>
<td>40</td>
<td>64</td>
<td>60</td>
</tr>
<tr>
<td>5 - 25</td>
<td>38</td>
<td>31</td>
<td>62</td>
</tr>
</tbody>
</table>

Note. $\chi^2 (3, n = 603) = 1.68, p = 0.64$

Each poverty range is a mutually exclusive category of poverty level and therefore one p-value is provided.

*p < .05. **p < .01

Table 4-11. Special Education Teaching Assignment: Does the assignment impact whether the sample teachers stay in or leave teaching after their first year?

<table>
<thead>
<tr>
<th>Teaching Assignment</th>
<th>Staying</th>
<th>Leaving</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>EH, SED</td>
<td>42</td>
<td>19</td>
<td>58</td>
</tr>
<tr>
<td>MH, Autistic, PH</td>
<td>37</td>
<td>49</td>
<td>63</td>
</tr>
<tr>
<td>SLD, VE, Pre-K</td>
<td>35</td>
<td>150</td>
<td>65</td>
</tr>
</tbody>
</table>

Note. $\chi^2 (2, n = 603) = 1.00, p = 0.60$

Emotionally handicapped (EH), severely emotionally disturbed (SED); Mentally handicapped (MH) included profound, trainable, and educable; Autistic; Specific Learning disability (SLD), Varying Exceptionality (VE), Pre-kindergarten special education. Each teaching assignment is a mutually exclusive category of assignment and therefore one p-value is provided.

*p < .05. **p < .01
Table 4-12. Change in teaching assignment: Does a change in teaching assignment impact whether the sample teachers stay in or leave teaching?

<table>
<thead>
<tr>
<th>Change in job</th>
<th>Staying</th>
<th></th>
<th>Leaving</th>
<th></th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td></td>
</tr>
<tr>
<td>No Change</td>
<td>28</td>
<td>104</td>
<td>72</td>
<td>263</td>
<td>0.00*</td>
</tr>
<tr>
<td>Change</td>
<td>48</td>
<td>114</td>
<td>52</td>
<td>122</td>
<td></td>
</tr>
</tbody>
</table>

Note. $X^2$(1, n = 603) = 24.81, p = 0.00*
Each teaching assignment is a mutually exclusive category of assignment and therefore one p-value is provided.
*p < .05. **p<.01

Table 4-13. Job change: Does the level or type of teacher preparation impact whether the sample teachers change teaching assignments?

<table>
<thead>
<tr>
<th>Change in job</th>
<th>No teacher preparation</th>
<th></th>
<th>Special education preparation</th>
<th></th>
<th>General education preparation</th>
<th></th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td></td>
</tr>
<tr>
<td>No Change</td>
<td>53</td>
<td>196</td>
<td>35</td>
<td>130</td>
<td>11</td>
<td>41</td>
<td>0.72</td>
</tr>
<tr>
<td>Change</td>
<td>55</td>
<td>129</td>
<td>33</td>
<td>77</td>
<td>13</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

Note. $X^2$(2, n = 603) = 0.66, p = 0.72
Each teaching category is a mutually exclusive category of teacher preparation and therefore one p-value is provided.
*p < .05. **p<.01

Table 4-14. Spell one survival analysis: Distribution of event occurrence for special education teachers beginning 2003 ending 2009

<table>
<thead>
<tr>
<th>Time</th>
<th>Survival</th>
<th>Failure</th>
<th>Survival standard error</th>
<th>Number failed</th>
<th>Number left</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.71</td>
<td>0.29</td>
<td>0.02</td>
<td>172</td>
<td>431</td>
</tr>
<tr>
<td>2</td>
<td>0.54</td>
<td>0.46</td>
<td>0.02</td>
<td>279</td>
<td>324</td>
</tr>
<tr>
<td>3</td>
<td>0.44</td>
<td>0.56</td>
<td>0.02</td>
<td>337</td>
<td>266</td>
</tr>
<tr>
<td>4</td>
<td>0.38</td>
<td>0.62</td>
<td>0.02</td>
<td>373</td>
<td>230</td>
</tr>
<tr>
<td>5</td>
<td>0.36</td>
<td>0.64</td>
<td>0.02</td>
<td>382</td>
<td>143</td>
</tr>
<tr>
<td>6</td>
<td>0.34</td>
<td>0.66</td>
<td>0.02</td>
<td>385</td>
<td>68</td>
</tr>
</tbody>
</table>

Note. Survival analysis column descriptors: Time column indicates the academic year; Survival column shows the percentage of teachers still teaching at the time of observation; Failure column show the percentage of teachers who left teaching by the time of observation (end of academic year); Number failed and number left columns show the cumulative data for the number of teachers who left and the number who stayed over the six-year period.
N = 603
Table 4-15. Survival analysis: How prior teaching experience impacts staying in teaching

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Teaching experience</th>
<th>Total</th>
<th>Failed</th>
<th>Censored</th>
<th>Percent censored</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1st year</td>
<td>293</td>
<td>203</td>
<td>90</td>
<td>31</td>
</tr>
<tr>
<td>2</td>
<td>2nd year</td>
<td>57</td>
<td>40</td>
<td>17</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>3rd year</td>
<td>50</td>
<td>32</td>
<td>18</td>
<td>36</td>
</tr>
<tr>
<td>4</td>
<td>4 - 5 years</td>
<td>81</td>
<td>41</td>
<td>40</td>
<td>49</td>
</tr>
<tr>
<td>5</td>
<td>6 - 10 years</td>
<td>66</td>
<td>43</td>
<td>23</td>
<td>35</td>
</tr>
<tr>
<td>6</td>
<td>11 - 15 years</td>
<td>31</td>
<td>16</td>
<td>15</td>
<td>48</td>
</tr>
<tr>
<td>7</td>
<td>16 - 20 years</td>
<td>25</td>
<td>10</td>
<td>15</td>
<td>60</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>603</td>
<td>385</td>
<td>218</td>
<td>36</td>
</tr>
</tbody>
</table>

Note. The stratum column represents each level of prior experience. The survival analysis showed the number of teachers who failed (left teaching) at each stratum by the observation date. The censored column shows the number of teachers who did not leave teaching during data collection. With the exception of stratum 5, the percentage of teachers who stayed in teaching increased with each stratum.

Table 4-16. Survival analysis: Job change and the impact on leaving teaching

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Total</th>
<th>Failed</th>
<th>Censored</th>
<th>Percent Censored</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Change</td>
<td>367</td>
<td>263</td>
<td>104</td>
<td>28</td>
</tr>
<tr>
<td>Change</td>
<td>236</td>
<td>122</td>
<td>114</td>
<td>48</td>
</tr>
<tr>
<td>Total</td>
<td>603</td>
<td>385</td>
<td>218</td>
<td>36</td>
</tr>
</tbody>
</table>

Note. The stratum column represents two categories—teachers who did not change teaching assignments and teachers who experienced a change. The survival analysis showed the number of teachers who failed (left teaching) at each stratum by the observation date. The censored column shows the number of teachers who did not leave teaching during data collection.
Table 4-17. Spell two survival analysis: Distribution of event occurrence for special education teachers beginning 2003 ending 2009

<table>
<thead>
<tr>
<th>Time</th>
<th>Out of teaching</th>
<th>Return</th>
<th>Out of teaching standard error</th>
<th>Number returning</th>
<th>Number remaining out of teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.69</td>
<td>0.30</td>
<td>0.02</td>
<td>117</td>
<td>265</td>
</tr>
<tr>
<td>2</td>
<td>0.68</td>
<td>0.31</td>
<td>0.02</td>
<td>122</td>
<td>255</td>
</tr>
<tr>
<td>3</td>
<td>0.67</td>
<td>0.33</td>
<td>0.02</td>
<td>126</td>
<td>226</td>
</tr>
</tbody>
</table>

Note. Survival analysis column descriptors: Time column indicates the academic year; out of teaching column is the percentage of teachers who did not return at the time of observation; return column is the percentage who returned to teaching at the time of observation (end of academic year); Number returning and number out columns show the cumulative data. Two hundred twenty-six teachers who did not return were censored after year three, 33 teachers were censored in years one through three. N = 385 teachers leaving after spell one, N = 126 teachers who returned for spell two.

Table 4-18. Survival analysis: How the teacher’s race impacts a return to teaching

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Teacher race</th>
<th>Total</th>
<th>Return</th>
<th>Censored</th>
<th>Percent censored</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>White</td>
<td>202</td>
<td>51</td>
<td>151</td>
<td>75</td>
</tr>
<tr>
<td>2</td>
<td>Black</td>
<td>162</td>
<td>72</td>
<td>90</td>
<td>56</td>
</tr>
<tr>
<td>3</td>
<td>Hispanic</td>
<td>6</td>
<td>1</td>
<td>5</td>
<td>83</td>
</tr>
<tr>
<td>4</td>
<td>Asian</td>
<td>9</td>
<td>2</td>
<td>7</td>
<td>78</td>
</tr>
<tr>
<td>5</td>
<td>American Indian</td>
<td>6</td>
<td>0</td>
<td>6</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>385</td>
<td>126</td>
<td>259</td>
<td>67</td>
</tr>
</tbody>
</table>

Note. The stratum column represents each race. The total column represents the total number of teachers who left teaching. The return column shows the number of teachers who returned to teaching at each stratum by the observation date. The censored column shows the number of teachers who did not return to teaching during data collection. Hispanic, Asian, and American Indian teachers are represented by small sample sizes.
Figure 4-1. Survival distribution of the sample teachers over time.

Figure 4-2. Survival distribution of teachers with varying levels of prior teaching experience.
Figure 4-3. Survival distribution for teachers changing teaching assignment and leaving teaching.

Figure 4-4. Survival distribution of the returning sample teachers over time.
Figure 4-5. Survival distribution of the returning sample teachers and race.
CHAPTER 5
SUMMARY AND DISCUSSION

The purpose of this study was to understand more about the characteristics of special education teachers who are retained in a large urban school district. The overarching goal was to determine who stays, who leaves, and who returns. Although teacher shortages and teacher retention have been subjects of research for some time, much has changed in recent years regarding who is entering the field and how they are becoming qualified to teach. The demographic of the teaching force is changing dramatically (Feistritzer, 2005; Johnson, 2004), with an increasing number of men, minority candidates, and mid-career changers taking advantage of alternative certification route programs that allow them to begin teaching and complete certification requirements simultaneously. These programs have attracted a talented and diverse pool of prospective teachers from a variety of backgrounds who otherwise may not have chosen to enter teaching. Understanding more about the individuals who enter the field of special education and stay can provide important insights for teacher preparation program providers and district staffing representatives (Decker, et al., 2004; Humphrey, et al., 2008).

Teacher turnover, which can indicate teachers leaving, switching teaching areas, or moving to a different school, can have a long-reaching impact and contribute to a lack of stability in the teaching force (Billingsley, 2004; Boe & Cook, 2006; Ingersoll, 2001). The shortage of qualified special educators is of particular concern as growing numbers of special educators are being prepared through alternative route programs (Carlson, et al., 2002). Given the significant impact that teachers have on student
achievement (Hanushek, et al., 2002), continued research into who is teaching, how they are prepared, and whether they stay has added importance.

**Findings**

This study examined whether and when special education teachers in a large urban school district left teaching and if they returned. The survival analysis methodology allowed for the study of the sample teachers’ retention behavior over a period of six years within the context of their varying teaching assignments. The study attempted to identify significant predictor variables that would indicate which teacher characteristics might signify a greater likelihood of the teacher staying in teaching. The following discussion summarizes the findings for each research question, examines how the analyses comport with current literature, and offers considerations for additional research.

**Discussion**

**Research question 1:** Does the risk of leaving teaching differ with respect to a special education teacher’s personal characteristics?

The study findings regarding the sample teachers’ personal characteristics were mixed. The descriptive statistics identifying the race of the sample teachers showed that 53% were White, 41% were Black, and 6% were Hispanic, Asian, or American Indian. The findings, which indicated no significant difference in the risk of leaving teaching with regard to race, are of interest considering the higher percentage of Black teachers (51%) who were hired to teach in district schools with 70% to 100% minority student population as compared to 28% of the sample White teachers. In contrast to these findings, other researchers have shown that race does impact teacher retention when the race of the teacher differs from that of the student population.
Boyd et al. (2005) found that White teachers were nearly twice as likely to leave or transfer from schools with a large minority population. Black teachers were found to stay longer in schools with higher rates of minority enrollment (Hanushek et al., 2002; Scafidi et al., 2003). The findings of this study differ considerably from the literature. Therefore, additional research is needed to find out why the sample Black teachers left teaching in schools where there were high levels of minority students, if indeed they should be more likely to stay.

Alternative route programs attract a more diverse pool of prospective teachers in terms of age, gender, and ethnicity than traditional teacher preparation programs (Feistritzer, 2005, 2008; Zeichner & Schulte, 2001). This is an important contribution given the differences between the racial makeup of the student population and that of the teaching workforce. This study provides evidence that alternative route opportunities can attract a more diverse pool of candidates, 70% of the 139 male sample teachers, 69% of the 249 Black sample teachers, and nearly half (47%) of the 32 teachers who were Asian, Hispanic, American Indian, had incomplete or no prior teacher preparation. These teachers were transitioning to the field of education through alternative certification routes. Although no relationship was found between the sample teachers’ level or type of teacher preparation and the probability of leaving teaching, as discussed in research question 2, further investigation of the interactions among teacher preparation, teacher race, and teacher retention in high minority schools would provide important information. Additional research is also needed to determine if there were other factors such as certification problems or working conditions involved in the attrition rate of the sample Black teachers.
Consideration of job choice and organization fit theory are also instructive. The descriptive statistics in table 4-4 show that a disproportionate number of sample Black teachers were hired in high minority population schools. It is beyond the scope of this study to determine the rationale for the percentage of Black teachers hired in high minority schools and why they were not retained at higher rates as expected (Boyd et al., 2005; Hanushek et al., 2002; Scafidi et al., 2003). However, subjective job choice theory, which is discussed later may provide some insight into why the sample Black special teachers may have chosen positions in high minority schools, and why school administrators may have actively recruited these individuals.

There are conflicting studies on whether gender impacts retention (Boyd et al., 2005; Ingersoll, 2001; Strunk & Robinson, 2006). There is also evidence that gender may interact with age and race as it relates to retention (Imazeki, 2005). The findings of this study did not show that the risk of leaving teaching differed with regard to gender. However, age and prior teaching experience, which typically coincide, were initially shown to have a statistically significant relationship with the newly hired teacher’s risk of leaving teaching after the first year. Although prior experience remained significant through the survival analysis, age did not. Younger teachers did tend to leave teaching at a higher rate but not a statistically significant level. These findings are similar to those found in the literature (Harris & Adams, 2007).

Multiple factors exist that contribute to the u-shaped relationship that age and teaching experience have with attrition. Life cycle events such as child rearing, the age at which a teacher begins his/her career, and retirement are all factors in attrition (Imazeki, 2005; Johnson, 2006; Miller, Brownell, & Smith, 1999; Strunk & Robinson,
Special education teachers show the same pattern of early attrition as their general educator counterparts. Younger special educators are also more likely to transfer than older special education teachers (Billingsley, 2004). It is important to note that these teachers are not necessarily lost from the field of teaching; many of these teachers contribute to the reserve pool of experienced teachers who later return to the field (Cook & Boe, 2007; Harris & Adams, 2007).

The relationship between teacher characteristics such as age, gender, and retention has implications for programs that specifically recruit older, second career individuals (Dai, et al., 2007; Lui & Johnson, 2006). The large number of teachers (64% in this study) who were over the age of 36 demonstrates the importance of taking characteristics such as age into consideration when planning recruitment and selection strategies for hiring.

The second career candidates are older, and have work and life experiences that can be valuable in the classroom. However, these individuals may also have considerable opportunity costs as they transition from their prior careers. Alternative route programs can help mitigate the cost of transitioning and allow the individual to begin teaching more quickly (Dai, et al., 2007). It is important for district induction and support program representatives to recognize the unique needs of second career teachers. Provisions for certification counseling and skilled mentoring will help to provide the necessary supports while validating the knowledge and experience of older novice teachers.

Retaining new teachers so they can gain experience, and keeping experienced teachers in high need schools has taken on added importance. Evidence has shown
that a teacher’s ability increases within the first years of experience as measured by his or her contribution to student learning (Clotfelter et al., 2006; Goldhaber, 2007; Hanushek, Kain, O’Brien, & Rivkin, 2005; Harris & Sass, 2007; Kane, et al., 2006; Rockoff, 2004). Therefore, it becomes more important to provide the necessary supports for new teachers to persevere through the critical first years.

**Research question 2**: Does the risk of leaving teaching differ with respect to a special education teacher’s level or type of teacher preparation?

There were three types of teacher preparation among the sample special education teachers. The majority of the sample teachers (54%) had incomplete or no prior teacher preparation. These teachers were hired based on passing subject area certification tests for special education, and were allowed to complete their certification requirements while teaching. Over a third of the sample teachers (34%) had more extensive preparation in special education. The remaining 12% of the teachers were trained in general education. An analysis of the level and type of teacher preparation revealed that the teachers who stayed in teaching and the teachers who left teaching did not differ significantly with regard to their teacher preparation.

The finding that the risk for leaving teaching did not differ significantly for teachers with special education training is not consistent with other research indicating that more extensive preparation in special education is associated with higher retention (Boe, et al., 2007, Nougaret, et al., 2005). There are other factors that would provide insight into why the sample teachers with more extensive preparation were not retained at a significantly higher rate than the alternatively certified teachers. This study did not collect data on the amount of professional development or support received at the
school, both of which could be important to retention. Findings regarding job change are discussed in research question five and may also shed light on why some teachers stay and others do not. Qualitative research on working conditions is needed to explore the retention behavior of teachers with regard to their preparation.

This study did not track student achievement. However, recent research has demonstrated that more extensive preparation in special education is positively related to special education student learning gains (Feng & Sass, 2009). Student achievement has also been linked to teacher retention (Boyd, Grossman, Lankford, et al., 2007). Considering the insufficient number of new special education teachers prepared each year, and the prevalence and continued growth of alternative certification routes, it is important that research linking student achievement and teacher preparation is continued.

**Research question 3**: Does the risk of leaving teaching differ with respect to a special education teacher’s school assignment?

The descriptive statistics show that well over half of the sample teachers hired to teach in the district’s high need schools left teaching after their first year. However, an analysis of the school and job assignment characteristics in this study indicated that the occurrence of higher percentages of minority students or low socioeconomic student populations did not have a statistically significant impact on the risk of the sample teachers leaving.

Other studies have related the characteristics of a school’s student population and socioeconomic status with its ability to recruit and retain teachers (Elfers, et al., 2006; Hanushek, et al., 2004; Imazeki, 2005; Scafidi, et al., 2006). New teachers have a
tendency to seek out positions in schools that are close to their hometowns or in
demographically similar communities (Boyd, et al., 2005). The teacher’s race also plays
a role. White teachers are more likely to turnover than their Black counterparts if the
schools they are teaching in have a high proportion of minority students. Whether this is
a function of racial composition, or the high poverty conditions that typically are
characteristic of urban schools, is unclear (Hanushek, et al., 2004; Strunk & Robinson,
2006).

**Research question 4:** Does the risk of leaving teaching differ with respect to the
special educator’s teaching assignment?

The majority of the sample special education teachers (71%) was hired for
teaching assignments that included working with students with specific learning
disabilities, varying exceptionalities, and the prekindergarten special education
population. These students were served in either self-contained settings with the same
teacher or resource pull-out settings for a period of the day. Twenty-two percent of the
teachers were hired for teaching assignments serving students with intellectual and
developmental disabilities previously classified as EMH, TMH, and PMH, and students
with Autism. The smallest group (7%) was hired for teaching assignments serving the
population of students with emotional and behavioral disorders. Special education
teachers in the latter assignment typically had at least one paraprofessional teaching
assistant.

Each of these assignments provides its own set of challenges for the teacher.
However, analysis of the special education teaching assignment did not show a
statistically significant relationship between the special educator’s teaching assignment
and the risk of the teacher leaving teaching after the first year. It is important to note that over half of the teachers hired in each special education assignment left teaching during the six-year data collection period.

A variable of interest that arose during the study was job change. The teachers who changed from one special education assignment to another assignment left teaching at a much lower rate than teachers who stayed in the same teaching assignment. The descriptive data in table 4-13 show that almost a quarter of the 218 teachers who stayed in teaching for the duration of the study left special education teaching assignments for general education teaching assignments. This is not unexpected. Boe and Cook (2006) found that many new and returning special education teachers were prepared as general education teachers. Therefore, it is not surprising that they would return to general education teaching when a position became available. The remaining sample teachers either stayed in the same special education teaching assignment (47%), changed special educations assignments (26%), or moved to a district position (10%).

Although there is a rationale for why some sample teachers changed from special education to general education assignments, there are still unanswered questions regarding the impact of the job change variable on the probability that the sample teachers would stay in teaching. Working conditions may play a role in why the sample special education teachers who changed assignments tended to stay in teaching at a higher rate. The district’s transfer policy, which required that teachers remain in their initial school placement for three years before requesting a transfer may also have played a role. Special education teachers in particular have challenges that are specific
to their field and working conditions, which can affect their decision to stay, move to another school, or leave teaching altogether (Billingsley, 2003; Gersten, et al., 2001; Ingersoll, 2003; Johnson & Birkeland, 2003; Johnson, 2006). School climate and collegial relationships have also been shown to be more important to special educators than to general educators, (Carlson, et al., 2002).

Workplace conditions such as reasonable teaching assignments, manageable paperwork requirements, collaborative colleagues, meaningful professional development, and safe facilities have been identified as important factors for both recruitment and retention (Billingsley, et al., 2004; DeAngelis & Presley, 2007; Gersten, et al., 2001; Johnson, 2006). Administrative support has also been recognized as one of the more important factors in teacher retention and sense of efficacy, in addition to the need for mentoring and collegial support for new teachers (Billingsley, 2004; Boe, et al., 2008b; Miller, et al., 1999). Qualitative data regarding working conditions and job satisfaction could provide important insight into why the sample teachers were more likely to stay in teaching if they changed assignments.

**Research question 5**: How many years on average do newly hired special education teachers continue to teach in a large urban school district?

The survival analysis methodology allowed for the examination of both time-varying predictor variables and missing or censored data (teachers who did not leave teaching during data collection). Instead of taking teachers who left teaching out of the risk set (those teachers eligible to leave or return to teaching), the model allowed continued gathering of information. The spell one survival analysis provided information regarding how long we can expect special education teachers to survive or continue to
The findings indicated a 71% probability that the teachers would survive through the first year and a 44% probability of surviving through the third year. By the sixth year, a little more than a third of the teachers were expected to still be in teaching.

The hazard probability demonstrated the special education teacher’s risk of leaving teaching. The analysis showed there was a 29% risk that the teacher would not survive after the 1\textsuperscript{st} year, a 56% risk that the teacher would leave teaching in the third year, and by the 6\textsuperscript{th} year there was a 66% risk that the teacher would leave teaching. The average length of time that the sample special education teachers continued to teach was about three years. However, this statistic underestimates the length of time a teacher continues to teach as the result of a skewed distribution. The median survival time has a lower bound but not an upper bound, indicating that the average teaching time would be longer.

Although teacher turnover varies considerably within and across school districts, urban districts typically lose teachers at a higher rate than their suburban neighbors. The findings in this study comport with other literature on urban districts. In a study of New York City schools, approximately 44% of elementary and 55% of middle school teachers leave or migrate from their initial placement within two years. Many of these teachers tend to migrate to higher achieving schools with fewer minority students (Boyd, Grossman, Lankford, et al., 2007). In Illinois school districts about 44% of the new teachers leave their initial school within their first two years, and 67% leave within five years. Roughly one-third of the teachers who leave during their first five years return to teach—but not in the most disadvantaged schools (DeAngelis & Presley, 2007).
Research question 6: What is the probability of a special education teacher returning to teaching after leaving?

About 40% of the 603 sample special education teachers observed were returning to teaching with at least two years of experience at the beginning of data collection. These statistics support the research indicating that many of the teachers who fill vacancies are returning teachers, or part of what is referred to as the reserve pool. The pool is identified as a group composed of experienced teachers who left teaching and those who were prepared to teach but delayed entering the field. Approximately half of the vacancies in special and general education are filled from the reserve pool (Cook & Boe, 2007; Harris & Adams, 2007).

The sample data show that of the 603 special education teachers studied, 385 teachers left teaching. A total of 126 or 33% of these teachers did return for a second spell in teaching. The spell two survival analysis showed a 30% probability that a teacher would return in the first year after leaving, a 31% probability that a teacher would return to teaching by the second year, and a 33% probability that a teacher would return by the third year out of teaching.

A relationship between the teacher’s race and a return to teaching was shown to be statistically significant. The survival analysis provided further data showing that Black teachers tended to return to teaching after a period out of teaching at a much higher rate than their White counterparts. Forty-four percent (72 of 162) of the Black teachers and 25% (51 of 202) of the White teachers returned for a second spell in teaching. Singer (1993) also found that Black special education teachers returned to teaching at a much higher rate than White teachers.
The pattern of hiring Black teachers in schools with very high percentages of minority students, which was demonstrated among the newly hired sample teachers, continues with the returning teachers. In the schools where 70% or more of the student population was minority, 25% (13 of 51) of the returning White teachers were hired as compared to 42% (30 of 72) of the Black teachers who were returning to teaching (DeAngelis & Presley, 2007; Hanushek, et al., 2004; Imazeki, 2005; Scafidi, et al., 2007). The pattern of hiring may have been related to the Black teachers desire to teach at schools where there were higher levels of minority students (Imazeki, 2005). However, other factors could be involved.

At the time of the study, the district required screening interviews at the central office. Once cleared for hire, the candidates were referred to schools where vacancies existed and the school principal was responsible for final hiring decisions. Therefore, it is possible that Black teachers may have been disproportionately referred to high minority population schools.

**Job Choice Theory**

Although working conditions are critical to retaining teachers, a good fit between the teacher and the school organization is an important first step (Cable & Judge, 1996; Kristof, 1996). It is also important to bear in mind that how employers recruit and hire new teachers has an influence on post-hire outcomes such as job satisfaction, performance, and retention. The organizational behavior and management literature provides insight into how job choice and person-organization fit can inform hiring practices.

There are three theories of job choice: objective theory, critical contact theory, and subjective theory. Objective theory proposes that candidates make job decisions based
on economic factors such as pay, benefits, and other factors that are objective and measurable. Critical contact theory explains that candidates usually have limited knowledge or contact with the hiring organization. Therefore, job choice decisions are based on the relationship developed through contact with the recruiter. Subjective theory explains that job choice is determined based on the candidate’s perception of whether the organization will meet his or her psychological needs (Behling, et al., 1968; Liu & Johnson, 2006; Young, et al., 1989).

**Urban Districts**

Subjective job choice theory may have the most applicability when staffing challenging schools and subject areas. Many individuals who are seeking ways to enter the field of teaching, particularly in urban settings, are doing so through a sense of mission. They want to make a difference for children and communities. Clearly this type of motivation is important when considering candidates for high-need schools. Consequently, the school’s culture, climate, and values are important factors to take into consideration when determining whether the candidate is a good match (Pounder & Merrill, 2001; Schein, 2004). It is essential that these candidates have realistic expectations, otherwise they can quickly become disillusioned when faced with the day-to-day challenges of teaching in a high need school.

Many new teachers are relocating and working in communities with racial, ethnic, and socioeconomic backgrounds that differ from their own. Therefore, the extent to which there are opportunities available for the interviewers and interviewees to learn enough about the other to make informed decisions has important consequences (Pounder & Merrill, 2001). Principals who consider fit when hiring teachers increase the likelihood of maintaining a stable faculty, and fulfilling the mission of their school. An
individual is more likely to stay if the environment meets his or her needs. Conversely, individuals with low levels of congruence with the needs, values and culture of the school are more likely to leave (Judge, et al., 2000; Kristof, 1996; Schein, 2004). A good match or fit takes on additional importance when recruiting and retaining second career individuals who may have other career options available to them. These are all considerations when recruiting teachers for high-need schools and have implications for retention and ultimately student achievement (Dai, et al. 2007; Liu & Johnson, 2006).

**Implications for Practice**

Informative hiring practices make a difference in the quality of job choice decisions (Liu & Johnson, 2006). Principals should involve their teacher leaders and other faculty in the selection and hiring process. Candidates should be invited to visit the school and meet and talk with other teachers. Whenever possible candidates should be given the opportunity to demonstrate their ability to teach and connect with students through demonstration lessons.

These types of activities provide the candidate, principal, and potential peers with adequate information to make informed hiring decisions. Unfortunately, many teachers are hired after a review of their credentials and a brief interview at a recruitment event or school visit. The outcome is less informed applicants and administrators and missed opportunities to make the best job matches. District Human Resource and staffing representatives should ensure that school administrators and other hiring agents are trained in effective hiring practices and have an understanding of job choice and organization-fit principles.
Recommendations for Future Research

Teacher selection and hiring practices are critically important for schools and their stakeholders, especially in shortage areas such as special education. Additional research that examines effective recruitment, hiring practices, and most importantly, post-hire outcomes of special educators would provide valuable information for the K-12 education community and those who prepare teachers. On-going study should also continue regarding how special educators are prepared to teach.

Special education teachers have specific challenges with regard to student needs, paperwork requirements, and collaborating with colleagues. Research should inform professional development content and induction support needs for special educators in general and second career individuals transitioning into special education in particular. As alternative certification programs expand and colleges of education examine their preparation programs, district administrators are looking for candidates who can positively impact student learning. Research that can link teacher characteristics—including preparation, and student learning is needed to inform teacher educators, program developers, and district administrators.


BIOGRAPHICAL SKETCH

Melissa Dunn completed her undergraduate degree in elementary education at the University of West Florida in 1987. She served her internship in a Title I school where she taught fifth grade. After a move to northeast Florida, Melissa taught various grade levels in both Title I and non-Title elementary schools. In 1998, Melissa completed her master’s degree in education with a program of study in Reading from the University of North Florida (UNF). She later completed additional graduate coursework in Educational Leadership at UNF in order to obtain Florida Educator Certification in Leadership.

Melissa began a new career path in education when she accepted a special assignment in Human Resources with the Clay County School Board. This position provided the opportunity to serve as a resource teacher assisting the district’s beginning teachers and also serving as a clinical instructor for field experience seminars in the UNF College of Education. Upon completion of this three-year commitment, Melissa accepted a position with Duval County Public Schools working with the Teacher Induction Program. Since 2001, she has worked in various capacities with teacher induction and alternative certification programs. Melissa is currently the Supervisor of Teacher Induction in the district. She holds Florida Educator Certification in Elementary Education grades 1 – 6, Reading grades K – 12, and Educational Leadership.