

Career Pathways of Principals in Texas

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INTRODUCTION

The Importance of Principals

The educational challenge of the 21st century is to achieve higher levels of learning for all children. This theme has become the overarching issue on the nation's domestic policy agenda as evidenced by the bi-partisan passage of NCLB. In their search for ways to improve school performance, educators and policymakers have addressed a broad array of challenges confronting schools. These approaches to improvement have included raising standards, strengthening teacher professional development, refocusing schools around the primary goal of student achievement, and holding schools accountable for results. Moreover, much of the focus on the education and policy community alike has been on the achievement gap between non-white and white students and economically disadvantaged students and their more affluent peers. These issues have taken on increased significance and immediacy with the implementation of NCLB requirements concerning testing and accountability across the country.

One overlooked aspect of increasing teacher quality is the role of the principal. Contemporary views of school leadership place the principal much closer to the heart of schooling--teaching and learning—than previous “man in the principal’s office” portrayals did (Bacharach & Mundell, 1995; Wolcott, 1973). With this shift has come the acknowledgement that the leadership of principals has an important impact on schools and student achievement (Heck & Hallinger, 1999). However, it has only been recently, with the introduction of improved research designs and statistical methods that empirical evidence has begun to accumulate in support of this belief (Hallinger & Heck, 1998; Leithwood & Jantzi, 2000; Prestine & Nelson, 2005; Riehl, 2000). Nonetheless, the field continues to have limited understanding of the mechanisms by which principals actually exercise their leadership for the positive benefit of the students in their schools.

The literature on teacher professional learning, for example, emphasizes the importance of teachers’ relationships with their principals in that principals play a leading role in designing and supporting school social contexts that in turn support professional learning (Goldring and Rallis, 1993; Leithwood & Montgomery, 1982; Rosenblum, Louis & Rossmiller, 1994; Smylie & Hart, 1999). Unfortunately, the base of empirical evidence in this area is not terribly robust. The few studies that do provide evidence concerning the particular characteristics and qualities of relations among and between teachers and principals, suggest that the link between teacher learning and student achievement is strongest in schools where principals construct opportunities for teachers to collaborate in their learning (e.g., observe one another and provide feedback) and to build strong collegial school environments (Little, 1982; Johnson, 1990; Rosenholtz, 1989). Based on the results of an analysis of research conducted between 1980 and 1995 on principals’ effects on student achievement, Hallinger and Heck (1998) identified four “avenues of influence” (p. 171) through which principals influence both individuals in schools and the systems within which individuals work, thereby influencing student outcomes. Skrla (2003) used these four “avenues of influence” in her analysis of the impact of accountability policies on schools to identify how principals mediate and use accountability policy in service of their efforts to support student achievement. She found that principals impact teacher and student performance through influencing the purposes and goals of the school, the structure and social

networks, the people, and the organizational culture. Similarly, Heck, Larsen & Marcoulides (1990) note that principals impact teaching and classroom practices through decisions they make and implement, particularly those that influence the school climate and supervision and organization of instruction.

Research on effective schools in the late 1970s and early 1980s found that effective schools had leaders who could hire and retain high quality teachers (Papa, Lankford and Wyckoff, 2002). For example, the literature on teacher professional learning contends that principals play a leading role in designing and supporting school social contexts that support professional learning (Goldring and Rallis, 1993; Leithwood & Montgomery, 1982; Rosenblum, Louis & Rossmiller, 1994; Smylie & Hart, 1999) which, in turn, increase retention (Ingersoll, 1999). Similarly, work by the Center for Teaching Quality has found that principal behaviors are inextricably linked to teachers' perceptions of working conditions, as well as their stated intentions about staying or leaving a school and actual school attrition rates (Center for Teaching Quality, in press). In fact, the Center for Teaching Quality found that that school leadership was the most important variable explaining teachers' stated intentions to stay or leave a school as well as school-level attrition rates (Center for Teaching Quality, in press).

In sum, research suggests that principals have an indirect and extremely important influence on student achievement through a number of mechanisms, one of the most important being increasing the quality of the teaching force in the school by recruiting and retaining high quality teachers. What the research has not done, that we will do, is identify the attributes of principles who are most successful at recruiting and retaining high quality teachers. These findings will enable us to sketch out the attributes of a high quality principal with regard to the staffing domain of school leadership (Leithwood, 2004).

Principal Career Paths

In general, there has been little systematic research conducted regarding the career paths and mobility of educational leaders. The majority of research that has been conducted on principal career paths draws from survey research, case studies, and anecdotal evidence (e.g., ERS, 1998; Bell & Chase, 1993; Lunenberg & Orienstein, 1991). This research focuses on tracking the routes that principals take from their teaching positions to their leadership positions and, to a lesser extent, documenting the reasons individual leaders made certain types of career path decisions (Young & McLeod, 2001). We know, for example, that women administrators tend to have an average of ten more years of teaching experience than men and thus are older than most men when they enter administrative positions (Riehl & Byrd, 1997), that over 85% of principals have been teachers, and that principals in urban areas are more likely than those who lead suburban schools to have a non-teaching career path (Papa, Lankford, Wyckoff, 2002).

Much of the current research on career paths was conducted in response to predictions of an administrator shortage. Indeed such predictions have led to a number of regional and national studies attempting to estimate the size of the administrative pool, vacancies, numbers of certified individuals, retirement patterns and the underlying causes for the shortage (c.f. Montana School Boards Association, 1999; National Center for Educational Statistics, 1998; New England School Development Council, 1988; Price, 1994; Young, 2003). The two-part Educational

Research Service (ERS) study for the National Association of Elementary School Principals and the National Association of Secondary School Principals (1998, 2000) showed that shortages resulted from a dramatic increase in principal retirement, which pervaded all school levels, requiring more principal applicants for available (and anticipated) positions.

The most detailed information on principal career paths came from two high-quality studies that utilized state administrative data to examine the career paths of principals over at least one decade within particular states. The first study examined principal career paths in North Carolina (Gates, Guarino, Santibanez, Brown, Ghosh-Dastidar, and Chung (2004) while the second study investigated career paths of administrators in New York (Papa, Lankford and Wycoff, 2002).

In North Carolina, the researchers found that the percentage of women administrators remained below the percentage of women teachers even though the percentage of women administrators increased dramatically—from about 26% in 1990 to almost 47% in 2000. However, the researchers also found that males obtaining certification were far more likely than females obtaining certification to actually become employed as principals. Indeed, they found that males were 4 times more likely than females to directly enter the principalship. With respect to the race/ethnicity of individuals, the researchers found no significant changes in the composition of school administrators over the decade-long timeframe.

In terms of principal stability, the researchers found that less than 50% of new principals were still in the position of principal in North Carolina after 6 years. Astonishingly, only 18% remained at the same school over the 6 year period. More directly related to this paper, 14% of the new principals had returned to teaching after the 6 years while 12% had taken other administrative positions.

In terms of principal turnover at the school level, the researchers found that the average school-level turnover rate was about 18%. The researchers also found that principals in schools with large proportions of minority students were more likely to leave the principalship than principals in other schools. Interestingly, they discovered that when the race/ethnicity of the principal matched the race/ethnicity of the largest racial/ethnic group in a school, the principal was more likely to remain in the school.

Even with this increased interest in the careers of principals, our understanding of career paths is still relatively limited. Little is known, for example, about the mobility of leaders once in the profession. In one study conducted by Papa, Lankford and Wycoff (2002) on principal career paths in New York, found that approximately two-thirds of new principals leave the school in which they started their careers within the first six years and that urban schools are much more likely to have less experienced principals and principals who received their bachelors degrees from lower ranked colleges. Although these researchers did not collect data on what motivates these leaders' departures, they did trace them to their new schools: many transferred within the same district and/or moved to schools similar to those they left. Such differences in experience and career movement may be directly related to capacities of schools to recruit and retain teachers, enact school reforms, and create a stable school culture.

A primary goal of educational leadership preparation is to influence the career engagement and advancement of its graduates (Pounder & Merrill, 2001). Yet, with the exception of program evaluations, little research exists on the impact of leadership preparation on the career outcomes of recent graduates (McCarthy, 1999). Although interest in researching the effectiveness of leadership preparation is growing, research that systematically examines the career paths of graduates from different types of preparation programs is not yet available. The paper described in this proposal addresses this critical gap in the research literature. Specifically, the purpose of this paper is to examine the career paths of graduates from educational administration programs in Texas, a very large and diverse state. Rather than simply examining whether graduates become employed and how long they stay employed as principals, this paper tracks graduates into schools immediately following certification and follows them in their various roles and responsibilities, including teacher, assistant principal, principal, central office administrator, and superintendent.

Objectives

The objective of this paper is to mine the Texas principal database to examine the career paths and leadership effects of graduates from educational administration programs. In realizing this objective, we will examine factors such as: the number and percentage of principals who leave the principalship and return to another role within the education field; the attributes and qualifications of principals in schools, by school type (e.g., level of school, % of students from low-income homes, etc.), across the 10-year time span; the characteristics of individuals who chose to obtain principal certification and eventually became employed as principals; and, the characteristics and attributes of principals who remain at a school for 3 consecutive years.

The initial research questions for this study are as follows:

1. What are the characteristics and attributes of teachers who obtain principal certification?
2. What are the characteristics and attributes of individuals who become employed as principals?
3. What are characteristics and attributes of individuals who leave the principalship and take another position within the field of education?
4. What are the characteristics and attributes of principals who remain at a school for 3 consecutive years?

Data and Methodology

Different data sets were employed to answer the different research questions. Below, we describe the different data sets upon which we relied, then provide the sample sizes and methodology employed to answer each question.

The first data set included the employment status of each individual in Texas public schools from the 1994-95 through 2005-06 academic year. This dataset included whether an individual was employed as a teacher, principal, assistant principal, superintendent, or associate superintendent. Further, the dataset identifies the school(s) and school district(s) that employ each individual. The second dataset includes certification test information. This data set includes every certification test and certification score taken by individuals since 1987.

The third data set includes certification information for each individual obtaining certification in Texas since 1991. For those obtaining certification after 1993, the dataset also links the individual to the preparation program from which they received their training. This data set also includes individual characteristics such as age, race/ethnicity, and gender. The fourth data set includes information about each Texas public school and school district. This data included information on student demographics, school level, school size, school accountability rating, and student achievement.

The fifth data set includes teacher assignments for each school year from 1994-95 through 2005-06. This data set includes the subject area assignment for each teacher employed in a Texas public school.

All of the data sets were purchased from the Texas Education Agency and were cleaned and merged by the authors. Using Texas data is beneficial in two ways. First, with over 8,000 schools and 1,050 school districts, Texas is a large and diverse state, both in terms of the number of districts, schools, principals, and teachers, and the demographics of districts, schools, principals, and teachers. Texas has an abundance of inner-city, suburban, small city, and rural districts and schools, as well as schools that serve large percentages of poor and minority students and schools that serve large percentages of affluent and white students. Second, Texas has several distinct metropolitan areas that serve as separate and independent labor markets (Austin, Dallas/Ft. Worth, Houston, San Antonio, Laredo, and El Paso). This allows for more detailed analyses of local labor markets than possible in any state other than California, but California does not collect data in a way that allows longitudinal analyses.

Question 1:

When examining the characteristics of teachers who eventually obtain principal certification, we relied on a dataset that included roughly 238,000 teachers employed in Texas public schools during the 1994-95 academic year. Beginning with this set of teachers, we then used state certification databases to determine which teachers eventually obtained principal certification within the next 10 academic years. To analyze the data, we employed descriptive statistics as well as logistic regression analysis. The dependent variable in the logistic regression analysis was a binary variable indicating whether or not an individual obtained a principal certificate from a Texas principal preparation program in any year in the subsequent decade.

Question 2:

When examining the characteristics of individuals obtaining principal certification and then becoming employed as a principal in a Texas public school, we relied on a dataset that included 4,105 individuals from 42 different preparation programs who obtained principal certification from September 1, 1993 through August 31, 1995. To analyze the data, we employed descriptive statistics as well as logistic regression analysis. The dependent variable in the logistic regression analysis was a binary variable indicating whether or not an individual became employed as a principal in a Texas public school in any year in the subsequent decade.

Question 3:

To answer this question, we used a dataset that included 6,091 individuals employed as principals in Texas public schools during the 1995-96 academic year. A restricted data set was used to examine the association between preparation programs and employment. This restricted dataset included 1,768 individuals employed in Texas public schools as a principal during the 1995-96 school year and for whom we had preparation program information. To analyze the data, we employed descriptive statistics as well as logistic regression analysis. The dependent variables in the various logistic regression analyses were binary variables indicating whether or not an individual became employed as a superintendent or assistant superintendent, returned to being a teacher, obtained employment as an assistant principal, or remained employed as a principal over the next 10 years.

Question 4:

The data used for this study included 6,038 individuals employed as principals in only one school for the 1994-95 school year, 6,414 individuals employed as principals in only one school for the 1997-98 school year, and 6,838 individuals employed as principals in only one school for the 2000-01 school year. To analyze the data, we employed descriptive statistics as well as logistic regression analysis. The dependent variable in the logistic regression analysis was a binary variable indicating whether or not an individual remained a principal in the same school for a three-year time span.

FINDINGS

Principal Certification

In this analysis, we examined 238,094 teachers employed in Texas public schools during the 1994-95 academic year and followed them over the next decade to see how many obtained principal certification. We conducted two different analyses. First, we focused on all of the 239,094 teachers and second, we focused only on high school teachers.

Descriptive Statistics: All Teachers

As stated previously, there were 238,0954 teachers employed in Texas public schools during the 1994-1995 academic year.

Gender

As shown below in Table 2, almost 34% of those obtaining principal certification were male while only 22% of all teachers were male. Thus, a disproportionate percentage of male teachers obtained certification. Almost 10% of all male teachers obtained principal certification while less than 6% of female teachers did so.

Table 1: Number and Percentage of Teachers and Teachers Obtaining Principal Certification by Gender

Gender	Teachers		Obtained Certification		% Obtaining Certification
	#	%	#	%	
Male	52,304	22.0%	5,068	33.6%	9.7%
Female	185,790	78.0%	10,013	66.4%	5.4%
Total	238,094	100.0%	15,081	100.0%	6.3%

Race/Ethnicity

As shown in Table 2, a disproportionately greater percentage of those obtaining certification were African American or Hispanic while a disproportionately lower percentage of those obtaining certification were White. The difference in the percentage of White teachers and White teachers obtaining principal certification was 10 percentage points. Interestingly, about 10% of Native American and African American teachers obtained principal certification while less than 6% of White teachers did so.

Table 2: Number and Percentage of Teachers and Teachers Obtaining Principal

Certification by Race/Ethnicity

Race/ Ethnicity	Teachers		Obtained Certification		% Obtaining Certification
	#	%	#	%	
Native American	422	0.2%	45	0.3%	10.7%
Asian American	960	0.4%	58	0.4%	6.0%
African American	19,318	8.1%	2,010	13.3%	10.4%
Hispanic	34,820	14.6%	2,872	19.0%	8.2%
White	182,574	76.7%	10,096	66.9%	5.5%
Total	238,094	100.0%	15,081	100.0%	6.3%

Education Experience

Not surprisingly, as shown in Table 3, a disproportionately greater percentage of relatively inexperienced teachers obtained principal certification. For example, while only about 19% of teachers had between 0 and 2 years of education experience in Texas, about 25% of the teachers eventually obtaining principal certification had between 0 and 2 years of education experience. About 10% of all teachers with between 3 and 5 years of experience obtained principal certification. For the three experience ranges below 10 years, at least 8% of all teachers obtained principal certification. On the other hand, for the experience ranges above 10 years of experience, only 6% or fewer teachers obtained principal certification.

Table 3: Number and Percentage of Teachers and Teachers Obtaining Principal Certification by Years of Experience

Years of Education Experience	Teachers		Obtained Certification		% Obtaining Certification
	#	%	#	%	
0 to 2	44,600	18.7%	3,780	25.1%	8.5%
3 to 5	34,085	14.3%	3,383	22.4%	9.9%
6 to 10	44,617	18.7%	3,535	23.4%	7.9%
11 to 15	38,073	16.0%	2,291	15.2%	6.0%
16 to 20	34,387	14.4%	1,441	9.6%	4.2%
21 to 30	36,896	15.5%	636	4.2%	1.7%
> 30	5,436	2.3%	15	0.1%	0.3%
Total	238,094	100.0%	15,081	100.0%	6.3%

Age

Similar to the findings about the years of education experience, Table 4 reveals that a disproportionately greater percentage of younger teachers obtained principal certification. The most striking difference was for those in the 28 to 35 year-old age range. Specifically, 20.5% of teachers were in this age range, yet 33% of the teachers obtaining principal certification were from this age range. About 10% of those in the 21- to 27-year age range and the 28- to 35-year old age range eventually obtained principal certification.

Table 4: Number and Percentage of Teachers and Teachers Obtaining Principal

Certification by Age

Age in Years	Teachers		Obtained Certification		% Obtaining Certification
	#	%	#	%	
21 to 27	23,322	9.8%	2,233	14.8%	9.6%
28 to 35	48,833	20.5%	5,032	33.4%	10.3%
36 to 42	51,668	21.7%	4,224	28.0%	8.2%
43 to 50	67,040	28.2%	3,020	20.0%	4.5%
> 50	45,727	19.2%	554	3.7%	1.2%
Missing	1,504	0.6%	18	0.1%	1.2%
Total	238,094	100.0%	15,081	100.0%	6.3%

School Level

As shown in Table 5, a slightly disproportionately lower percentage of elementary teachers obtained principal certification. About 7% of teachers in non-elementary schools obtained certification while less than 6% of elementary teachers obtained certification.

Table 5: Number and Percentage of Teachers and Teachers Obtaining Principal Certification by School Level

School Level	Teachers		Obtained Certification		% Obtaining Certification
	#	%	#	%	
Elementary	116,723	49.0%	6,570	43.6%	5.6%
Middle	51,222	21.5%	3,710	24.6%	7.2%
High	61,866	26.0%	4,265	28.3%	6.9%
Both elem/sec	6,953	2.9%	480	3.2%	6.9%
Other	1,330	0.6%	56	0.4%	4.2%
Total	238,094	100.0%	15,081	100.0%	6.3%

School Accountability Rating

As shown in Table 6, the percentages of teachers and the percentages of teachers obtaining certification in schools with different accountability ratings were about the same. However, when examining the percentage of teachers from each accountability rating who obtained certification, a greater percentage of teachers from lower performing schools obtained certification than teachers from higher performing schools.

Table 6: Number and Percentage of Teachers and Teachers Obtaining Principal Certification by School Level

Accountability Rating	Teachers		Obtained Certification		% Obtaining Certification
	#	%	#	%	
No Rating	5,790	2.4%	409	2.7%	7.1%
Low-Performing	17,141	7.2%	1,249	8.3%	7.3%
Acceptable	172,594	72.5%	11,060	73.3%	6.4%
Recognized	33,493	14.1%	1,921	12.7%	5.7%
Exemplary	9,076	3.8%	442	2.9%	4.9%
Total	238,094	100.0%	15,081	100.0%	6.3%

Logistic Regression Results: All Teachers

In this analysis, we examined the relationship between personal and school characteristics and obtaining principal certification. To do so, we employed logistic regression analysis and used obtaining principal certification as the dependent variable.

As shown in Table 7, a large number of variables were related to obtaining principal certification. As suggested by the descriptive statistics, African American, Hispanic, and teachers of other races/ethnicities were more likely to obtain principal certification than White teachers. Specifically, African American teachers were 2.3 times more likely than White teachers to obtain certification, Hispanic teachers were 45% more likely than White teachers to obtain certification, and teachers of other races and ethnicities were 24% more likely than White teachers to obtain certification.

Not surprisingly, teachers with less than 10 years of education experience were about 65% more likely than other teachers to obtain certification. Even after controlling for education experience, teachers less than 30 years old were 21% more likely than teachers between 30 and 50 years old to obtain certification while teachers older than 50 were 78% less likely to obtain certification than teachers between 30 and 50 years old.

Teachers employed in schools with more than 75% economically disadvantaged students were about 5% more likely than teachers employed in other schools to obtain principal certification. As compared to teachers in elementary schools, teachers in middle schools, high schools, and both elementary/secondary schools were more likely to obtain certification. Specifically, high school teachers were almost 44% more likely than elementary teachers to obtain certification, middle school teachers were about 33% more likely than elementary teachers to obtain certification, and teachers in schools with both elementary and secondary grades were about 40% more likely than elementary teachers to obtain certification.

Interestingly, teachers from schools rated Exemplary were about 10% less likely to obtain certification than teachers in other schools.

Table 7: Logistic Regression Results

Variable	B	S.E.	Wald	df	Sig.	Exp(B)
Constant	-3.163	0.023	18852.795	1	0.000	0.042
African American	0.837	0.027	969.615	1	0.000	2.310
Hispanic	0.375	0.024	238.494	1	0.000	1.454
Other race/ethnicity	0.216	0.104	4.314	1	0.038	1.241
Experience < 10 yrs	0.502	0.020	609.112	1	0.000	1.652
Age < 30	0.191	0.021	79.519	1	0.000	1.211
Age > 50	-1.511	0.039	1486.375	1	0.000	0.221
% eco dis students > 75	0.050	0.023	4.655	1	0.031	1.052
Both elem/sec schools	0.333	0.050	44.436	1	0.000	1.395
high schools	0.363	0.022	283.920	1	0.000	1.438
middle schools	0.285	0.022	169.994	1	0.000	1.329
Exemplary school	-0.110	0.051	4.757	1	0.029	0.895
Fast growth region	-0.019	0.018	1.048	1	0.306	0.982

Descriptive Statistics: High School Teachers

In this analysis, we focused specifically on high school teachers from the same set of teachers employed in the 1994-95 academic year. We chose to focus on just high schools teachers in order to examine the relationship between subject area assignment and obtaining principal certification.

Subject Area Assignment

As shown in Table 8, a disproportionately greater percentage of physical education/health education teachers obtained principal certification. When examining the percentage of teachers who eventually obtained certification, over 10% of all physical education/health education teachers obtained principal certification—a greater percentage of teachers than from any other subject area.

Table 8: Number and Percentage of High School Teachers and Teachers Obtaining Principal Certification by Subject Area Assignment

Subject Area Taught	Teachers		Obtained Certification		% Obtaining Certification
	#	%	#	%	
English/Soc Studies	21,257	34.4%	1,611	37.8%	7.6%
Mathematics/Science	16,594	26.8%	1,281	30.0%	7.7%
For Lang/Fine Arts/CS	8,590	13.9%	387	9.1%	4.5%
Special Populations	15,658	25.3%	926	21.7%	5.9%
PE/Health	11092	17.9%	1168	27.4%	10.5%
Total	na	na	na	na	na

Logistic Regression Results: High School Teachers

As shown in Table 9, African American teachers were 2.0 times more likely than White teachers to obtain certification while Hispanic teachers were 35% more likely than White teachers to obtain certification.

Not surprisingly, teachers with less than 10 years of education experience were about 64% more likely than other teachers to obtain certification. Even after controlling for education experience, teachers older than 50 were 75% less likely to obtain certification than teachers between 30 and 50 years old.

Interestingly, teachers located in fast-growth regions of the state were almost 10% less likely than other teachers to obtain certification.

Finally, PE/Health education teachers were about 50% more likely than mathematics/science teachers to obtain certification while English/social studies teachers were about 13% more likely than mathematics/science teachers to obtain certification. Special population teachers (bilingual, ESL, special education, and vocational education) were about 9% less likely than mathematics/science teachers to obtain certification while fine arts/foreign language teachers were about 37% less likely than mathematics/science teachers to obtain certification.

Table 9: Logistic Regression Results for Becoming a Principal

Variable	B	S.E.	Wald	df	Sig.	Exp(B)
Constant	-2.755	0.042	4229.700	1	0.000	0.064
African American	0.706	0.053	176.941	1	0.000	2.026
Hispanic	0.299	0.049	37.384	1	0.000	1.349
Other race/ethnicity	0.052	0.192	0.074	1	0.785	1.054
Experience < 10 yrs	0.491	0.037	176.496	1	0.000	1.634
Age < 30	0.051	0.044	1.322	1	0.250	1.052
Age > 50	-1.410	0.065	473.569	1	0.000	0.244
% eco dis students > 75	-0.108	0.070	2.401	1	0.121	0.898
Exemplary school	-0.233	0.171	1.839	1	0.175	0.793
Fast growth region	-0.091	0.033	7.424	1	0.006	0.913
PE/Health	0.408	0.038	114.921	1	0.000	1.504
Special Populations	-0.093	0.041	5.074	1	0.024	0.911
Fine Arts/For Language	-0.462	0.059	61.543	1	0.000	0.630
English/Social Studies	0.127	0.034	13.572	1	0.000	1.135

Employment as a Principal

In this section, we examined the number and percentage of individuals receiving principal certification in academic years 1993-94 and 1995-96 who subsequently obtained positions as principals in Texas public schools from academic year 1995-96 through academic year 2005-06.

Descriptive Statistics: Employment as a Principal

All Individuals

Of the 4,105 individuals obtaining principal certification during the two academic years, 1,732 (42.2%) of them were employed as principals over the next decade.

Gender

As shown in Table 10, the majority of those obtaining certification were female. However, almost 50% of males were employed as principals whereas only about 38% of females were employed as principals.

Table 10: Number and Percentage of Certificate Holders Becoming a Principal By Gender

Gender	Obtained Certification		Employed as Principal		% Employed as Principal
	#	%	#	%	
Male	1,555	37.9%	772	44.6%	49.6%
Female	2,550	62.1%	960	55.4%	37.6%
Total	4,105		1,732		42.2%

Race/Ethnicity

As shown in Table 11, the vast majority of those obtaining certification and those becoming a principal were White. A greater percentage of White and Hispanic certificate holders obtained employment as a principal than certificate holders of other races or ethnicities. The difference between the two groups was about 10 percentage points.

Table 11: Number and Percentage of Certificate Holders Becoming a Principal By Race/Ethnicity

Race/ Ethnicity	Obtained Certification		Employed as Principal		% Employed as Principal
	#	%	#	#	
Native American	34	0.8%	12	0.7%	35.3%
Asian American	16	0.4%	5	0.3%	31.3%
African American	606	14.8%	213	12.3%	35.1%
Hispanic	751	18.3%	334	19.3%	44.5%
White	2,698	65.7%	1,168	67.4%	43.3%
Total	4,105		1,732		42.2%

Age

As shown in Table 12, the majority of those obtaining certification were between 35- and 45-years of age. About 50% of certificate holders aged 45 years or younger became employed as principals while about 40% of those older than 45 years of age became employed as principals. Unfortunately, the date of birth was not available for a large percentage of those not becoming principals.

Table 12: Number and Percentage of Certificate Holders Becoming a Principal By Age

Age Range	Obtained Certification		Employed as Principal		% Employed as Principal
	#	%	#	#	
< 35	894	21.8%	474	27.4%	53.0%
35 to 45	1,673	40.8%	836	48.3%	50.0%
> 45	1,065	25.9%	421	24.3%	39.5%
Missing	473	11.5%	1	0.1%	0.2%
Total	4,105		1,732		42.2%

Principal Certification Score

As shown in Table 13, about 23% of those obtaining certification had scores that were in the top 10% of all principal certification scores from 1993 through 2006. A slightly greater percentage of those scoring in the top 10% of all test takers on the principal certification test became employed as principals.

Table 13: Number and Percentage of Certificate Holders Becoming a Principal By Principal Certification Test Score

Certification Score	Obtained Certification		Employed as Principal		% Employed as Principal
	#	%	#	#	
Not Top 10 Score	3,163	77.1%	1,303	75.2%	41.2%
Top 10 Score	942	22.9%	429	24.8%	45.5%
Total	4,105		1,732		42.2%

Preparation Program: Percentage of Graduates Failing Principal Certification Exam

As shown in Table 14, about 32% of those obtaining certification graduated from a principal preparation program in which over 15% of graduates failed the principal certification examination. Individuals from such programs were less likely than graduates from other programs to become employed as principals over the next decade.

Table 14: Number and Percentage of Certificate Holders Becoming a Principal By Percentage of Graduates in Program Failing the Principal Certification Test

Program: % Cert Exam Failers	Obtained Certification		Employed as Principal		% Employed as Principal
	#	%	#	#	
% Fail <15	2,804	68.3%	1,237	71.4%	44.1%
% Fail > 15	1,301	31.7%	495	28.6%	38.0%
Total	4,105		1,732		42.2%

Preparation Program: Percentage of Graduates Scoring in the Top 10% on the Principal Certification Exam

As shown in Table 15, about 10% of those obtaining certification graduated from a principal preparation program in which over 35% of graduates scored in the top 10% of test takers on the principal certification examination. Surprisingly, individuals from such programs were slightly less likely than individuals from other programs to become employed as principals..

Table 15: Number and Percentage of Certificate Holders Becoming a Principal By the Percentage of Graduates in Program Scoring in the Top 10% on the Principal Certification Test

Program: % Top 10 Scorers	Obtained Certification		Employed as Principal		% Employed as Principal
	#	%	#	#	
% top 10 scores < 35	3,684	89.7%	1,565	90.4%	42.5%
% top 10 scores > 35	421	10.3%	167	9.6%	39.7%
Total	4,105		1,732		42.2%

Preparation Program: Percentage of Graduates Who Were Female

As shown in Table 16, a very small percentage of those obtaining certification graduated from preparation programs with graduation classes that were more than 85% female. About 48% of graduates were from programs with less than 60% female graduates or from programs between 60% and 85% female graduates. A greater percentage of graduates from programs with less than 60% female graduates than graduates from other programs eventually became principals.

Table 16: Number and Percentage of Certificate Holders Becoming a Principal By the Percentage of Graduates in Program Who Were Female

Program: % Female Graduates	Obtained Certification		Employed as Principal		% Employed as Principal
	#	%	#	#	
< 60%	1,970	48.0%	884	51.0%	44.9%
60 to 85%	1,945	47.4%	775	44.7%	39.8%
> 85%	190	4.6%	73	4.2%	38.4%
Total	4,105		1,732		42.2%

Preparation Program: Percentage of Graduates Who Were White

As shown in Table 17, about 63% of those obtaining certification were from programs with between 60% and 85% White graduates. A greater percentage of graduates from programs with more than 85% White graduates became principals than graduates from other programs.

Table 17: Number and Percentage of Certificate Holders Becoming a Principal By the Percentage of Graduates in Program Who Were White

Program: % White Graduates	Obtained Certification		Employed as Principal		% Employed as Principal
	#	%	#	%	
< 60%	806	19.6%	278	16.1%	34.5%
60 to 85%	2,597	63.3%	1,085	62.6%	41.8%
> 85%	702	17.1%	369	21.3%	52.6%
Total	4,105		1,732		42.2%

Preparation Program: University Council for Educational Administration

As shown in Table 18, about 19% of those obtaining certification graduated from institutions affiliated with the University Council for Educational Administration (UCEA). A slightly greater percentage of graduates from UCEA-affiliated institutions eventually became principals.

Table 18: Number and Percentage of Certificate Holders Becoming a Principal By UCEA Affiliation of Preparation Program

UCEA Affiliation	Obtained Certification		Employed as Principal		% Employed as Principal
	#	%	#	%	
non-UCEA	3,318	80.8%	1,365	78.8%	41.1%
UCEA	787	19.2%	367	21.2%	46.6%
Total	4,105		1,732		42.2%

Preparation Program: Carnegie Classification

As shown in Table 19, the vast majority of those obtaining certification were from Masters Universities and Colleges I. Indeed, 63% of those obtaining certification graduated from such programs. The only other type of Carnegie classification to have more than 10% of those obtaining certification were doctoral I programs. The percentage of those obtaining certification that became principals over the next decade ranged from 60% for Research I institutions to 28% for Doctoral II institutions. The percentage of graduates becoming principals was between 40 and 45% for most types of institutions.

Table 19: Number and Percentage of Certificate Holders Becoming a Principal By Carnegie Classification of Preparation Program

Carnegie Classification	Obtained Certification		Employed as Principal		% Employed as Principal
	#	%	#	#	
Research I	69	1.7%	28	1.6%	40.6%
Research II	81	2.0%	49	2.8%	60.5%
Doctoral I	505	12.3%	219	12.6%	43.4%
Doctoral II	204	5.0%	57	3.3%	27.9%
Masters Univ & Colleges I	2600	63.3%	1121	64.7%	43.1%
Masters Univ & Colleges II	364	8.9%	163	9.4%	44.8%
Baccalaureate Colleges II	113	2.8%	39	2.3%	34.5%
Out-of-State	4	0.1%	2	0.1%	50.0%
Alt Cert Program	165	4.0%	54	3.1%	32.7%
Total	4105		1732		42.2%

Logistic Regression Results: Becoming a Principal

To examine the factors associated with becoming a principal, we employed logistic regression analysis with the dependent variable indicating whether a person ever became a principal in a Texas public school in the decade following certification. We employed a host of individual and preparation program characteristics as independent variables.

As shown in Table 20, Hispanic graduates were about 40% more likely than White graduates to become principals while female graduates were about 35% less likely than males to become principals.

Those failing the principal certification examination were, not surprisingly, about 22% less likely to become principals than other graduates. On the other hand, those graduates with principal certification scores in the top 10% of all test-takers were about 32% more likely to become a principal.

Graduates from preparation programs with more than 15% of graduates failing the certification examination were about 19% less likely to become principals than graduates from other programs. Graduates from programs with at least 35% of graduates with scores in the top 10 of test-takers were about 35% less likely than graduates from other programs to become principals.

With respect to the gender of graduates from a program, graduates from programs with greater than 85% female graduates were about 50% more likely than graduates from other programs to become principals.

Graduates from programs with less than 60% White graduates were about 28% less likely to become principals than graduates from programs with between 60 and 85% White graduates while graduates from programs with greater than 85% White graduates were about 37% more likely to become principals than graduates from programs with between 60 and 85% White graduates.

Finally, with respect to the location of the preparation program, graduates from programs located in large metro areas were about 39% less likely to become principals than graduates from programs in other areas across the state.

Table 20: Logistic Regression Results for Becoming a Principal

Variable	B	S.E.	Wald	df	Sig.	Exp(B)
Constant	0.402	0.108	13.776	1	0.000	1.495
African American	-0.003	0.111	0.001	1	0.980	0.997
Hispanic	0.338	0.104	10.547	1	0.001	1.403
Other race/ethnicity	-0.335	0.321	1.087	1	0.297	0.716
Female	-0.423	0.074	32.716	1	0.000	0.655
Failed principal cert exam	-0.332	0.121	7.566	1	0.006	0.718
Top 10 cert exam score	0.279	0.088	10.025	1	0.002	1.322
Age < 30	-0.002	0.132	0.000	1	0.991	0.998
Age > 40	-0.255	0.076	11.177	1	0.001	0.775
Prog: % fail cert exam > 15	-0.208	0.093	5.043	1	0.025	0.812
Prog: % top 10 scores > 35	-0.426	0.137	9.709	1	0.002	0.653
Prog: % female < 60	0.072	0.115	0.387	1	0.534	1.074
Prog: % female > 85	0.404	0.203	3.947	1	0.047	1.498
Prog: % White < 60	-0.332	0.109	9.239	1	0.002	0.718
Prog: % White > 85	0.314	0.111	7.996	1	0.005	1.369
Prog: Metro area	-0.497	0.121	17.006	1	0.000	0.608
Prog: Rural area	0.078	0.107	0.529	1	0.467	1.081
Out-of-state certificate	-0.304	0.214	2.010	1	0.156	0.738
UCEA institution	0.187	0.097	3.726	1	0.054	1.206

Career Path Analysis of Principals Employed in 1996

Descriptive Statistics: Employment Status of Principals

All Principals

As shown in Table 21, slightly more than 50% were still employed as a principal after 5 years while about 35% were no longer employed in the Texas public education system. By year 10, only 23% were still employed as a principal and 62% were no longer employed. About 10% had moved into either an associate superintendent or superintendent position while 3% were employed as a teacher.

Table 21: Percentage of Principals Employed in Selected Education Roles in the Years After Employment as a Principal, 1996 Cohort

	Number of Years After Employment as a Principal									
	1	2	3	4	5	6	7	8	9	10
Principal	86.6	76.3	67.8	60.4	52.2	45.3	38.0	32.5	27.0	23.4
Asst Principal	1.8	2.8	3.0	3.4	3.4	3.4	3.2	2.9	2.6	2.5
Teacher	1.1	1.6	2.1	2.5	3.0	3.2	3.3	3.6	3.8	3.4
Assoc Superintendent	0.7	1.4	2.0	2.5	2.8	3.5	3.7	4.1	3.9	4.1
Superintendent	0.8	1.6	2.3	3.0	3.8	4.3	4.6	5.0	5.0	5.0
Not Employed	9.0	16.3	22.9	28.2	34.8	40.3	47.0	51.9	57.6	61.6
Total	100	100	100	100	100	100	100	100	100	100

Race/Ethnicity

As shown in Table 22, a slightly greater percentage of non-White principals remained in the principalship than White principals. After 5 years, the difference was only about 2 percentage points, while the difference increased to about 4 percentage points after 10 years. The difference was mostly due to a greater percentage of White principals moving into superintendent positions rather than a greater percentage of White principals leaving education altogether.

Table 22: Percentage of White Principals Employed in Selected Education Roles in the Years After Employment as a Principal, 1996 Cohort

Employment Status	Number of Years After Employment as a Principal									
	1	2	3	4	5	6	7	8	9	10
Principal										
White	86.5	76.4	67.5	60.2	51.6	44.7	37.5	31.7	26.1	22.5
Non-White	86.9	76.0	68.4	61.1	53.9	47.0	39.4	34.7	29.6	26.1
Asst Principal										
White	1.6	2.5	2.7	2.8	2.8	2.9	2.5	2.3	2.1	2.1
Non-White	2.4	3.5	3.8	4.9	5.0	4.6	5.2	4.3	3.9	3.7
Teacher										
White	1.2	1.8	2.3	2.5	3.2	3.3	3.5	3.7	3.9	3.5
Non-White	0.7	1.2	1.4	2.4	2.5	2.9	2.9	3.2	3.6	3.2
Assoc Superintendent										
White	0.7	1.4	2.0	2.7	2.9	3.7	4.0	4.3	4.0	4.2
Non-White	0.7	1.5	1.9	2.0	2.6	2.8	2.9	3.7	3.9	3.7
Superintendent										
White	0.9	1.9	2.7	3.6	4.7	5.3	5.7	6.1	6.1	5.9
Non-White	0.4	1.0	1.1	1.3	1.4	1.7	1.9	2.0	2.2	2.4
Not Employed										
White	9.1	16.1	22.7	28.2	34.9	40.1	46.8	51.9	57.8	61.8
Non-White	8.9	16.7	23.3	28.3	34.5	40.9	47.7	52.1	56.8	60.9
Total										
	100	100	100	100	100	100	100	100	100	100
	100	100	100	100	100	100	100	100	100	100

Gender

As shown in Table 23, a greater percentage of female principals remained in the principalship than male principals. After 5 years, the difference was almost 7 percentage points. Interestingly, the difference after 10 years decreased to just more than 5%. While a greater percentage of females stayed in principal roles, a greater percentage of women left the education field. In year 5, about 3% more females had left than males, but by year 10, about 6% more females had left the field than males. Importantly, a greater percentage of males moved into superintendent positions than females. Indeed, about 12% of the males had moved into superintendent positions while only 6% of females had done so. Finally, a greater percentage of males returned to teaching than females.

Table 23: Percentage of Male and Female Principals Employed in Selected Education Roles in the Years After Employment as a Principal, 1996 Cohort

Employment Status	Number of Years After Employment as a Principal									
	1	2	3	4	5	6	7	8	9	10
Principal										
Female	88.2	79.6	71.3	63.3	55.8	48.7	41.9	36.2	30.1	26.3
Male	85.2	73.4	64.7	57.9	49.1	42.4	34.7	29.3	24.4	20.9
Asst Principal										
Female	1.4	2.1	2.5	2.5	2.1	2.3	2.0	1.9	1.5	1.3
Male	2.1	3.3	3.4	4.2	4.5	4.3	4.3	3.7	3.5	3.5
Teacher										
Female	0.7	1.1	1.3	1.8	1.8	1.9	2.0	1.9	1.9	1.7
Male	1.4	2.1	2.8	3.2	4.1	4.3	4.5	5	5.5	4.9
Assoc Supt										
Female	0.4	1.2	1.6	2.2	2.4	3.3	3.4	4.1	4	4.3
Male	1	1.6	2.3	2.8	3.1	3.7	4.0	4.1	3.9	3.9
Superintendent										
Female	0.2	0.5	0.6	0.8	1	1.2	1.2	1.5	1.6	1.7
Male	1.2	2.6	3.8	4.8	6.2	7.1	7.6	8.1	8.1	7.9
Not Employed										
Female	9	15.5	22.8	29.5	36.8	42.7	49.4	54.4	60.9	64.7
Male	9.1	16.9	23	27.1	33	38.2	44.9	49.8	54.7	58.9
Total										
Female	100	100	100	100	100	100	100	100	100	100
Male	100	100	100	100	100	100	100	100	100	100

Age

As shown in Table 24, younger principals were more likely to stay in the profession than older principals. The ages referred to in this section correspond to the age of the individual in 1996.

After 5 years, about 60% of principals younger than 50 years old remained in the principalship while only 38% of those older than 50% did so. By year 10, about 39% of those 45 years old or younger remained in the principalship, 24% of those between the ages of 45 and 50 were still in the principalship, while only 10% of those older than 50 remained in the principalship. Most of the difference is due to older individuals leaving the education field. For example, after 10 years, 85% of those older than 50 years had left education while only 34% of those 45 years or younger had left the profession. Importantly, almost 20% of the of those 45 years or younger moved into superintendent positions over the 10 years.

Table 24: Percentage of Principals Employed in Selected Education Roles in the Years After Employment as a Principal, by Age for the 1996 Cohort

Status	Number of Years After Employment as a Principal									
	1	2	3	4	5	6	7	8	9	10
Principal										
<= 45	88.6	80.4	74.0	68.1	61.9	57.6	53.2	48.6	43.1	38.6
45 to 50	89.5	81.7	75.4	68.1	60.6	51.5	42.1	35.0	28.6	24.2
> 50	82.7	68.8	56.8	48.3	37.9	30.6	22.5	17.5	12.7	10.4
Asst Principal										
<= 45	2.5	3.9	4.2	5.1	4.9	4.8	4.9	4.5	4.5	4.1
45 to 50	1.9	2.7	3.2	3.5	3.8	3.7	3.6	3.0	2.7	2.8
> 50	1.1	1.8	1.8	1.9	1.7	2.0	1.6	1.4	0.9	1.0
Teacher										
<= 45	1.3	1.8	2.4	2.7	3.8	3.8	3.8	4.4	4.4	4.2
45 to 50	1.2	1.9	2.2	2.7	2.9	3.1	3.6	4.1	4.4	4.1
> 50	0.9	1.4	1.8	2.3	2.5	2.8	2.9	2.5	2.9	2.3
Assoc Supt										
<= 45	1.0	1.7	2.3	3.7	4.0	5.6	6.2	7.1	7.6	8.0
45 to 50	0.8	1.7	2.3	2.4	3.0	3.8	4.0	4.5	4.2	4.1
> 50	0.4	1.0	1.4	1.7	1.7	1.6	1.6	1.4	0.8	0.9
Superintendent										
<= 45	1.3	2.6	3.8	5.3	6.8	7.8	8.9	10.0	10.6	11.0
45 to 50	0.5	1.6	2.3	2.8	3.8	4.3	4.6	4.7	4.3	3.9
> 50	0.5	0.9	1.1	1.2	1.4	1.6	1.3	1.3	1.1	0.9
Not Employed										
<= 45	5.3	9.6	13.2	15.3	18.6	20.5	23.0	25.3	29.7	34.1
45 to 50	6.2	10.3	14.6	20.5	25.8	33.6	42.1	48.8	55.8	60.8
> 50	14.2	26.1	37.1	44.7	54.8	61.5	70.2	76.0	81.6	84.5
Total										
<= 45	100	100	100	100	100	100	100	100	100	100
45 to 50	100	100	100	100	100	100	100	100	100	100
> 50	100	100	100	100	100	100	100	100	100	100

Percentage of Economically Disadvantaged Students Enrolled in School

As shown in Table 25, there were only small differences in the employment trends of principals leading schools with different percentages of economically disadvantaged students. A slightly greater percentage of principals from schools serving more than 75% economically disadvantaged students remained as principals, but the difference was only a few percentage points. One trend of note is that a lower percentage of principals from schools serving more than 75% economically disadvantaged students moved into superintendent positions than principals in the other schools.

Logistic Regression Analysis: Employment Status of Principals

We explored three types of logistic regression analyses. The first analyses examined whether a person employed as a principal in 1996 was still employed as a principal in 2001 and then 2006. The second analyses examined whether a person employed as a principal in 1996 was no longer employed in the Texas public education system in 2001 and then 2006. The final analyses examined whether a person employed as a principal in 1996 was employed in a superintendent position in 2001 and then 2006.

As shown in Table 31, female principals in 1996 were about 50% less likely than male principals to remain as principals 5 years later while White principals were also about 50% less likely than non-White principals to remain as principals 5 years later.

Table 31: Logistic Regression Analysis Results for Employment as a Principal in 2001

Variable	B	Sig.	Exp(B)
Female	-0.664	0.004	0.515
High performing school	-0.268	0.240	0.765
Age: 45 years or less	0.333	0.107	1.396
Secondary Principal	0.325	0.155	1.384
Low Certification Score	0.333	0.154	1.396
% eco students > 50%	-0.338	0.170	0.713
White	-0.686	0.004	0.503
Constant	-2.445	0.000	0.087

As shown in Table 32, female principals were about 34% more likely than male principals to be employed as principals 10 years later. Not surprisingly, principals who were 45 years old or younger were 2.6 times as likely as older principals to still be employed as a principal 10 years later. Finally, secondary school principals were about 32% less likely than other principals to remain employed as a principal 10 years later.

Table 32: Logistic Regression Analysis Results for Employment as a Principal in 2006

Variable	B	Sig.	Exp(B)
Female	0.291	0.004	1.338
High performing school	0.124	0.227	1.132
Age: 45 years or less	0.956	0.000	2.601
Secondary Principal	-0.385	0.000	0.680
Low Certification Score	0.128	0.304	1.137
% eco students > 50%	0.049	0.654	1.050
White	-0.115	0.322	0.891
Constant	-1.383	0.000	0.251

Interestingly, female teachers were less likely to be principals after 5 years, but more likely to be principals after 10 years. Also of interest is that age did not affect whether a person was still a principal after 5 years, but did so after 10 years. In neither analysis were certification scores, school achievement, nor student demographics significant factors in explaining whether individuals remained principals over time.

Logistic Regression Analysis: Unemployment Status of Principals

In these analyses, we examine whether individuals employed as principals in 1996 were no longer employed in the Texas public education system in one of the 5 roles included in this analysis. For brevity, we label those not in any of the 5 positions as being unemployed.

As shown in Table 33, female principals were about 60% more likely than male principals to be unemployed after 5 years while principals who were age 45 years or younger were about 50% less likely than other principals to be unemployed after 5 years. Also, secondary school principals were about 26% more likely than other principals to be unemployed after 5 years.

Table 33: Logistic Regression Analysis Results for Unemployment in 2001

Variable	B	Sig.	Exp(B)
Female	0.478	0.000	1.613
High performing school	-0.162	0.143	0.851
Age: 45 ys or less	-0.704	0.000	0.494
Secondary Principal	0.234	0.043	1.264
Low Certification Score	0.026	0.821	1.027
% eco dis students: > 50%	-0.147	0.230	0.863
White	-0.026	0.846	0.975
Constant	-1.024	0.000	0.359

As shown in Table 34, female principals were about 78% more likely than male principals to be unemployed after 10 years while principals who were age 45 years or younger were about 75% less likely than other principals to be unemployed after 10 years.

Table 34: Logistic Regression Analysis Results for Unemployment in 2006

Variable	B	Sig.	Exp(B)
Female	0.576	0.000	1.779
High performing school	-0.073	0.461	0.930
Age: 45 ys or less	-1.466	0.000	0.231
Secondary Principal	0.118	0.261	1.125
Low Certification Score	0.074	0.486	1.076
% eco dis students: > 50%	0.042	0.710	1.043
White	-0.136	0.257	0.873
Constant	0.282	0.094	1.326

In both analyses, female principals were more likely than male principals to be unemployed while younger principals were less likely to be unemployed.

Employment as a Superintendent

In these analyses, we examined whether a person employed as a principal in 1996 moved into either an associate superintendent or superintendent position in 2001 or 2006. We collapsed these two roles into one role and used the label “superintendent” to denote employment in either of these two positions.

As shown in Table 35, female principals were about 70% less likely than male principals to enter into a superintendent position while White principals were about 60% more likely than other principals to make such a move. In addition, younger principals were about 36% more likely to move into a superintendent position while principals of predominantly economically disadvantaged schools were about 2.2 times more likely than other principals to move into a superintendent position.

Table 35: Logistic Regression Analysis Results for Employment in a Superintendent Position in 2001

Variable	B	Sig.	Exp(B)
Female	-1.208	0.000	0.299
High performing school	0.047	0.758	1.048
Age: 45 ys or less	0.306	0.036	1.358
Secondary Principal	0.214	0.182	1.238
Low Certification Score	-0.118	0.487	0.888
% eco dis students: > 50%	0.775	0.001	2.170
White	0.469	0.007	1.599
Constant	-2.719	0.000	0.066

As shown in Table 36, the results for 2001 remain consistent for 2006. Thus, after both 5 and 10 years, female principals are less likely than male principals to move into a superintendent position while White principals, principals of predominantly economically disadvantaged schools, and younger principals are more likely than non-White principals, principals of predominantly not economically disadvantaged schools, and older principals, respectively, to move into superintendent positions.

Table 36: Logistic Regression Analysis Results for Employment in a Superintendent Position in 2006

Variable	B	Sig.	Exp(B)
Female	-0.949	0.000	0.387
High performing school	0.160	0.236	1.173
Age: 45 ys or less	1.297	0.000	3.658
Secondary Principal	0.206	0.139	1.229
Low Certification Score	0.020	0.892	1.020
% eco dis students: > 50%	0.530	0.003	1.700
White	0.374	0.017	1.453
Constant	-2.917	0.000	0.054

Three-Year School Retention Rate

These analyses are limited to principals assigned to only one school for three different cohorts beginning in 1995, 1998, and 2001. The analysis identifies all principals employed only one Texas public school in each of the three aforementioned years, and then follows the principals over the next three academic years. Rather than analyzing whether a principals was still employed as a principal in Texas public school, this analysis examines if a principal remains at the same school over the time span.

Descriptive Statistics: 3-Tear Retention Rate

Overall

For each of the three cohorts, as shown in Table 37, about 50% of the principals remained at the same school. However, the percentage remaining at the same school did decrease slightly from 51.4% for the 1995 cohort to 47.1% for the 2001 cohort.

Table 37: Principal three-year retention rates for three cohorts

	1995-1998		1998-2001		2001-2004	
	#	%	#	%	#	%
Did not stay	2901	48.6%	3209	50.8%	3564	52.9%
Same school	3069	51.4%	3103	49.2%	3167	47.1%
Total	5970		6312		6731	

School Level

As shown in Table 38, the elementary school retention rate was statistically significantly greater than either the middle school or high school retention rate. The high school retention rate was lower than the middle school retention rate for all three cohorts, but the difference was statistically significant only for the 1995 cohort.

Table 38: Principal three-year retention rates by school level

School Level	1995-1998		1998-2001		2001-2004	
	#	%	#	%	#	%
Elementary	3393	56.1%	3545	52.9%	3727	50.7%
Middle School	1161	47.8%	1237	45.5%	1316	45.4%
High School	1082	41.9%	1175	43.9%	1276	41.1%
All Schools	5636 51.7%		5957 49.6%		6319 47.7%	

Race/Ethnicity

As shown below in Table 39, the retention rate for all schools was fairly similar for the three major racial/ethnic subpopulations. While there were some apparent differences at the middle and the high school levels, none of the differences were statistically significant.

Table 39: Principal three-year retention rates for three cohorts by school level and race/ethnicity

School Level		1995-1998		1998-2001		2001-2004	
		#	%	#	%	#	%
Elementary	Afr Amer	339	56.6%	370	53.5%	404	47.3%
	Hispanic	624	53.7%	689	52.5%	758	49.5%
	White	2422	56.7%	2475	52.8%	2553	51.7%
	Total	3393	56.1%	3545	52.9%	3727	50.7%
Middle School	Afr Amer	113	46.9%	129	41.9%	154	56.5%
	Hispanic	174	44.3%	212	42.9%	222	39.2%
	White	868	48.7%	889	46.5%	933	45.1%
	Total	1161	47.8%	1237	45.5%	1316	45.4%
High School	Afr Amer	66	45.5%	87	51.7%	112	42.9%
	Hispanic	132	33.3%	148	41.2%	175	34.3%
	White	876	42.9%	931	43.6%	981	42.2%
	Total	1082	41.9%	1175	43.9%	1276	41.1%
Total	Afr Amer	541	53.2%	616	50.6%	716	47.3%
	Hispanic	962	48.5%	1080	48.8%	1201	44.8%
	White	4442	51.8%	4588	49.0%	4782	47.7%
	Total	5970	51.4%	6312	49.2%	6731	47.1%

Gender

As shown in Table 40, female principals had greater retention rates than male principals at the elementary school level and for all schools across all three cohorts. There were no statistically significant differences at the middle school level and only one statistically significant difference for the 1995 cohort at the high school level.

Table 40: Principal three-year retention rates for three cohorts by school level and gender

School Level		1995-1998		1998-2001		2001-2004	
		#	%	#	%	#	%
Elementary	Male	1350	53.9%	1219	47.3%	1167	45.1%
	Female	2042	57.6%	2326	55.8%	2560	53.3%
	Total	3393	56.1%	3545	52.9%	3727	50.7%
Middle School	Male	815	47.5%	803	46.9%	804	44.9%
	Female	346	48.6%	434	42.9%	512	46.3%
	Total	1161	47.8%	1237	45.5%	1316	45.4%
High School	Male	893	40.3%	897	43.6%	962	40.7%
	Female	189	49.2%	278	45.0%	314	42.0%
	Total	1082	41.9%	1175	43.9%	1276	41.1%
Total	Male	3293	48.0%	3155	45.5%	3182	43.0%
	Female	2676	55.5%	3157	52.8%	3549	50.7%
	Total	5970	51.4%	6312	49.2%	6731	47.1%

Age

As shown in Table 41, the youngest principals (ages 21 through 35) had lower retention rates than principals between the ages of 46 and 55 for all schools. The oldest principals (older than age 56) had lower retention rates than principals between the ages of 36 and 55 for all schools.

At the elementary school level, the oldest principals had lower retention rates than principals between the ages of 36 and 55 for all three cohorts. Moreover, the differences were fairly substantial—greater than 14 percentage points in all cases.

At the middle school level, the oldest principals had lower retention rates than principals between the ages of 46 and 55. There were no trends at the high school level.

Table 41: Principal three-year retention rates for three cohorts by school level and age range

School Level	Age Range	1995-1998		1998-2001		2001-2004	
		#	%	#	%	#	%
Elementary	21 to 35	77	42.9%	106	46.2%	168	49.4%
	36 to 45	1005	57.7%	879	54.4%	895	56.8%
	46 to 55	1634	61.4%	1891	57.0%	1932	52.7%
	56+	668	43.1%	669	40.4%	732	38.5%
	Total	3384	56.3%	3545	52.9%	3727	50.7%
Middle School	21 to 35	33	36.4%	51	31.4%	65	38.5%
	36 to 45	401	47.6%	339	42.5%	343	49.3%
	46 to 55	584	51.4%	667	51.0%	691	48.0%
	56+	141	36.9%	179	35.2%	217	33.2%
	Total	1159	47.9%	1236	45.6%	1316	45.4%
High School	21 to 35	40	42.5%	33	42.4%	66	37.9%
	36 to 45	305	43.0%	303	43.9%	305	47.5%
	46 to 55	585	42.1%	655	45.5%	650	41.4%
	56+	148	39.9%	182	39.0%	255	33.3%
	Total	1078	42.0%	1173	44.0%	1276	41.1%
Total	21 to 35	173	40.5%	213	40.4%	336	41.1%
	36 to 45	1802	52.5%	1617	49.1%	1641	52.5%
	46 to 55	2961	55.2%	3391	52.9%	3466	49.0%
	56+	1017	41.1%	1088	39.4%	1288	36.3%
	Total	5953	51.6%	6309	49.2%	6731	47.1%

Percentage of Economically Disadvantaged Students Enrolled in the School

For all schools, as shown below in Table 42, there was no clear pattern across all three cohorts. For the 2001 cohort, however, schools with less than 25% economically disadvantaged students had statistically significantly greater principal retention rates than schools with more than 25% economically disadvantaged students.

At the elementary school level, schools with less than 25% economically disadvantaged students had statistically significantly greater principal retention rates than schools with more than 50%

economically disadvantaged students. At the middle and high school levels, there were no clear patterns across the three cohorts.

Table 42: Principal three-year retention rates for three cohorts by school level and percentage of economically disadvantaged students enrolled in the school

School Level	% of econ disadv stds	1995-1998		1998-2001		2001-2004	
		#	%	#	%	#	%
Elementary	00.0-25.0%	563	62.5%	582	58.8%	615	59.7%
	25.1-50.0%	859	57.0%	795	53.1%	798	51.3%
	50.1-75.0%	976	53.5%	994	50.3%	999	49.0%
	75.1-100%	995	54.4%	1174	52.0%	1315	47.5%
	Total	3393	56.1%	3545	52.9%	3727	50.7%
Middle School	00.0-25.0%	266	51.1%	263	48.7%	263	50.2%
	25.1-50.0%	468	52.8%	458	48.0%	472	46.2%
	50.1-75.0%	272	43.4%	297	42.8%	341	45.2%
	75.1-100%	155	34.8%	219	40.2%	240	39.2%
	Total	1161	47.8%	1237	45.5%	1316	45.4%
High School	00.0-25.0%	442	43.2%	430	47.4%	454	44.7%
	25.1-50.0%	437	45.3%	478	43.7%	489	40.9%
	50.1-75.0%	143	27.3%	179	34.1%	202	42.1%
	75.1-100%	60	41.7%	88	47.7%	131	27.5%
	Total	1082	41.9%	1175	43.9%	1276	41.1%
Total	00.0-25.0%	1321	52.9%	1312	52.7%	1387	51.7%
	25.1-50.0%	1867	52.9%	1832	48.9%	1862	46.7%
	50.1-75.0%	1494	49.1%	1584	46.2%	1663	46.3%
	75.1-100%	1251	50.8%	1531	49.9%	1750	44.2%
	Total	5933	51.5%	6259	49.2%	6662	47.0%

Percentage of Minority Students Enrolled in the School

As shown below in Table 43, there were no clear patterns across the three cohorts at any of the school levels. Indeed, there were very few statistically significant results for any of the cohorts.

Table 43: Principal three-year retention rates for three cohorts by school level and percentage of minority students enrolled in the school

School Level	% minority students	1995-1998		1998-2001		2001-2004	
		#	%	#	%	#	%
Elementary	00.0-25.0%	993	59.7%	958	56.2%	894	54.9%
	25.1-50.0%	772	55.4%	742	51.5%	746	51.5%
	50.1-75.0%	585	55.0%	651	51.3%	688	51.5%
	75.1-100%	1043	53.9%	1194	52.0%	1399	47.3%
	Total	3393	56.1%	3545	52.9%	3727	50.7%
Middle School	00.0-25.0%	373	53.9%	383	46.7%	378	48.7%
	25.1-50.0%	330	50.0%	325	48.6%	335	41.8%
	50.1-75.0%	195	43.6%	226	47.3%	252	51.6%
	75.1-100%	263	39.5%	303	39.3%	351	41.0%
	Total	1161	47.8%	1237	45.5%	1316	45.4%
High School	00.0-25.0%	418	47.1%	417	49.2%	426	42.7%
	25.1-50.0%	304	40.1%	316	42.1%	330	39.4%
	50.1-75.0%	160	38.8%	195	40.5%	227	46.7%
	75.1-100%	200	36.0%	247	40.1%	293	36.2%
	Total	1082	41.9%	1175	43.9%	1276	41.1%
Total	00.0-25.0%	1901	54.9%	1863	51.9%	1802	49.8%
	25.1-50.0%	1489	50.8%	1464	48.2%	1503	45.6%
	50.1-75.0%	980	50.2%	1127	48.0%	1227	49.6%
	75.1-100%	1563	48.9%	1805	48.1%	2130	44.0%
	Total	5933	51.5%	6259	49.2%	6662	47.0%

Cohort Analyses: 3-Year Retention Rate

The logistic regression analyses examined a cohort of principals employed in 1995. The dependent variable was a dummy variable that identified whether the principal was still employed as a principal in the same school three academic years later. Furthermore, because of limited data on certification and preparation, the analysis was split into two different analyses. The first analysis utilized only individual characteristics such as gender, age, race/ethnicity, and years of education experience and school characteristics such as accountability rating, percentage of economically disadvantaged students, percentage of minority students, school level (elementary, middle school, high school, or both elementary/secondary), and school location (urban, suburban, rural, or small city).

Unfortunately, preparation program information was not available for all principals. Thus, the second analysis included the same individual and school characteristics, but also included preparation program characteristics.

Individual and School Characteristics Analysis

As stated previously, this cohort analysis examines all individuals employed as principals in 1995. The dependent variable was a binary variable indicating whether the principal was still employed as a principal in the same school in 1998.

The full cohort of principals included 5,912 individuals. The means and standard deviations for the variables employed in the logistic regression analysis are displayed in Table 17.

Table 44: Means and standard deviations for full 1995-1998 cohort

Variable	Mean	Std. Dev.
Race/Ethnicity: White	0.744	0.436
Gender: female	0.448	0.497
Age: < 35	0.029	0.168
Age: > 50	0.425	0.494
Experience: < 16	0.207	0.406
Experience: > 25	0.286	0.452
eco dis students: > 50	0.463	0.499
minority students : > 50	0.428	0.495
High-performing school	0.203	0.402
School level: elementary	0.572	0.495
District type: Urban	0.135	0.342
District type: Rural	0.107	0.309
District type: Suburban	0.137	0.344

As shown in Table 45, a number of individual and school characteristics are associated with principal retention in the same school. Specifically, the results suggest the following:

- Female principals were almost 20% more likely than male principals to remain at the same school;
- Principals older than 50 years of age were about 18% less likely than principals between the ages of 35 and 50 to remain at the same school;
- Principals with less than 16 years of education experience were about 30% less likely than principals with between 16 and 25 years of education experience to remain at the same school;
- Principals in schools with 50% or greater economically disadvantaged students were about 16% less likely than principals in schools with less than 50% economically disadvantaged students to remain in the same school;
- Principals in high-performing schools (schools rated either exemplary or recognized) were about 20% more likely than principals in low-performing schools (schools rated low-performing or acceptable) to remain at the same school; and,
- Elementary school principals were about 52% more likely than principals in middle schools, high schools, or both elementary/secondary schools to remain at the same school.

Table 45: Logistic regression results for full 1995-1998 cohort

Variable	B	S.E.	Wald	Sig.	Exp(B)
INDIVIDUAL CHARACTERISTICS					
Race/Ethnicity: White	-0.030	0.072	0.171	0.679	0.970
Gender: female	0.174	0.058	9.024	0.003	1.190
Age: < 35	-0.224	0.169	1.752	0.186	0.800
Age: > 50	-0.195	0.072	7.293	0.007	0.822
Experience: < 16	-0.360	0.073	24.339	0.000	0.697
Experience: > 25	-0.122	0.080	2.324	0.127	0.885
SCHOOL CHARACTERISTICS					
eco dis students: > 50	-0.171	0.075	5.222	0.022	0.843
minority students : > 50	-0.103	0.079	1.679	0.195	0.902
High-performing school	0.180	0.071	6.345	0.012	1.197
School level: elementary	0.417	0.061	46.374	0.000	1.518
District type: Urban	-0.085	0.086	0.972	0.324	0.919
District type: Rural	-0.092	0.088	1.107	0.293	0.912
District type: Suburban	-0.112	0.084	1.756	0.185	0.894
Constant	0.097	0.091	1.141	0.286	1.102

The second part of this analysis uses a smaller sample of principals. Indeed, the data included only 716 principals with preparation program and certification information. The means and standard deviations for the variables employed in the logistic regression analysis are displayed in Table 46.

Table 46: Means and standard deviations for restricted 1995-1998 cohort

Variable	Mean	Std. Dev.
Race/Ethnicity: White	0.772	0.420
Gender: female	0.471	0.499
Age: < 35	0.131	0.338
Age: > 50	0.173	0.379
Experience: < 16	0.541	0.499
Experience: > 25	0.063	0.243
eco dis students: > 50	0.466	0.499
minority students : > 50	0.380	0.486
High-performing school	0.175	0.380
School level: elementary	0.488	0.500
District type: Urban	0.084	0.277
District type: Rural	0.105	0.306
District type: Suburban	0.074	0.262
UCEA-affiliated program	0.145	0.353
female graduates > 40%	0.388	0.488
Top 10 producer	0.483	0.500
Program location: metro area	0.105	0.306

As shown in Table 20, a small number of individual, school, and program characteristics were associated with principal retention in the same school. Specifically, the results suggest the following:

- Female principals were almost 90% more likely than male principals to remain at the same school;
- Principals with more than 25 years of education experience were about three times more likely than principals with between 16 and 25 years of education experience to remain at the same school;
- Principals in schools with 50% or greater economically disadvantaged students were about 37% less likely than principals in schools with less than 50% economically disadvantaged students to remain in the same school; and,
- Principals from UCEA-affiliated institutions were about 40% less likely than principals from other preparation programs to remain at the same school.

Table 46: Logistic regression results for restricted 1995-1998 cohort

Variable	B	S.E.	Wald	Sig.	Exp(B)
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INDIVIDUAL CHARACTERISTICS					
Race/Ethnicity: White	0.379	0.238	2.539	0.111	1.461
Gender: female	0.644	0.193	11.148	0.001	1.904
Age: < 35	-0.170	0.257	0.441	0.507	0.843
Age: > 50	-0.216	0.256	0.710	0.400	0.806
Experience: < 16	-0.064	0.182	0.123	0.726	0.938
Experience: > 25	1.105	0.434	6.477	0.011	3.019
SCHOOL CHARACTERISTICS					
eco dis students: > 50	-0.468	0.214	4.785	0.029	0.627
minority students : > 50	0.395	0.245	2.599	0.107	1.485
High-performing school	-0.097	0.223	0.189	0.664	0.908
School level: elementary	0.211	0.190	1.227	0.268	1.235
District type: Urban	-0.027	0.339	0.006	0.937	0.974
District type: Rural	-0.049	0.273	0.033	0.857	0.952
District type: Suburban	-0.210	0.337	0.390	0.532	0.810
PROGRAM CHARACTERISTICS					
UCEA-affiliated program	-0.515	0.259	3.948	0.047	0.597
female graduates > 40%	0.216	0.190	1.288	0.256	1.241
Top 10 producer	-0.150	0.184	0.669	0.414	0.861
Program location: metro area	0.170	0.280	0.366	0.545	1.185
Constant	-0.537	0.336	2.554	0.110	0.584

DISCUSSION

Obtaining Principal Certification

In terms of obtaining certification, this study indicated that a fairly large percentage of teachers obtain principal certification. Indeed, over 6% of teachers in the single cohort obtained principal certification within 10 years of employment. Importantly, almost 10% of male teachers obtained principal certification and a greater percentage of African American and Hispanic teachers than White teachers obtained certification. This suggests that the pipeline of non-White school administrators is *not* diminished by certification requirements or the costs incurred by returning to school.

In addition, the findings suggested that teachers decide very early on in their careers—within the first 5 to 7 years—to obtain principal certification. This has important implications for districts and programs wishing to identify potential candidates for the principalship.

Interestingly, while the vast majority of teachers are at the elementary school level, a disproportionately low percentage of elementary teachers as compared to their peers in middle and high schools become certified as principals. This suggests further investigation into whether principals with teaching experience outside of elementary schools are hired to be elementary school principals. This study suggested that this may, in fact, be the case.

Finally, this study found that high school physical/health education teachers were 50% more likely than other high school teachers to obtain principal certification. Many of these teachers are coaches. Texas high schools are notorious for hiring ex-high school coaches. There is

anecdotal information suggesting that such principals are less effective as other principals, thus suggesting the need for further investigation into this area.

Employment as a Principal

Just as a greater percentage of male than female teachers obtain principal certification, a greater percentage of male than female certificate holders obtain employment as a principal. This suggests a glass ceiling or “good ol boy” effect that reduces the chances of females obtaining employment as a principal is still alive and well in Texas public schools.

While African American and Hispanic teachers were more likely than White teachers to obtain principal certification, Hispanic certificate holders were more likely to obtain a principalship position than either African American or White certificate holders. This may be explained by the extraordinary growth in schools serving large number of Hispanic children. Indeed, almost all of the growth in school-aged population in Texas is due to an increase in Hispanic children.

Interestingly, individuals scoring in the top 10% of all test-takers on the principal certification exam were more likely to become a principal while individuals failing the certification exam and then passing it were less likely to become employed as a principal. Whether the test results serve as a signal to either the individual or employer is unknown, but warrants further investigation. In addition, the relationship between test scores and principal performance needs investigation as well.

Career Path Analysis of Principals Employed in 1996

Principal Employment

As shown in this analysis, a large percentage of individuals employed as principals left the principalship over time. Indeed, nearly 50% left within 5 years and over 75% left within 10 years. A relatively small percentage of the principals became assistant principals, teachers, associate superintendents, or superintendents. Interestingly, the data suggested that a greater percentage became superintendents than return to the classroom. Most of the attrition is due to leaving the Texas public school system for some reason.

Interestingly, females were less likely than males to remain a principal after 5 years, but more likely than males to remain a principal after 10 years. The results for the 10-year time span appear to be due to a greater percentage of males moving into associate superintendent and superintendent positions. White principals were less likely than other principals to remain in a principalship after 10 years. Even after controlling for age and experience, secondary principals were less likely than elementary principals to remain in the principalship. Analyses described below suggested that this may be due to a greater probability of secondary principals moving into superintendent positions. Finally, principals younger than age 46 were far more likely to remain a principal for obvious reasons.

Not Employed

Female principals were much more likely to be no longer employed in a Texas public school after both 5 years and 10 years. Again, not surprisingly, those aged less than 46 years were far less likely to be no longer employed in a Texas public school after both 5- and 10-years. Further investigation is warranted about why females leave at a higher rate and what affect this has on the stability of principals in schools.

Employed as a Superintendent

Consistent with other research in this area, female principals were far less likely than their male peers to become a superintendent after 5 or 10 years. Also consistent with previous research, White principals are far more likely than their non-White peers to become a superintendent after 5 or 10 years. This suggests that the selection process for superintendent positions still favors males and Whites over females and non-Whites. As noted by a number of other authors, this has profound effects for school systems that are rapidly becoming less and less White. Indeed, by the 5th year in this cohort analysis, the majority of students in Texas were non-White, yet Whites were still more likely to become superintendents. The pipeline of potential superintendents may influence this and careful attention must be paid to whether this phenomenon changes over time as the percentage of non-White principals in Texas increases over time.

Interestingly, principals of schools with more than 50% economically disadvantaged students were more likely to become superintendents after 5- and 10-years. This may occur because school boards and district leaders are seeking out leaders with experience in serving poor students since the majority of Texas public school students are poor. However, much more investigation is needed into this finding.

Three-Year School Retention Rate

First, the 3-year retention rate at the same school for principals was astoundingly low. Indeed, only about 50% of principals remained at the same school for 3 years. At the high school level, the percentage was even lower—only about 40% remained at the same school for 3 consecutive years. Further, the percentage remaining for 3 years in high schools with greater than 75% economically disadvantaged students was less than 30%.

Interestingly, the above analyses revealed that females were more likely to leave the principalship than males, yet female principals were more likely to remain in schools for at least 3 years, even after controlling for school level and other factors. Again, while previous analyses found that older principals were more likely to leave the principalship, older principals were also more likely to stay in the same school for 3 or more years.

Principals in schools with more than 50% economically disadvantaged students were less likely to remain in the same school for 3 or more years while principals of high-performing schools were more likely to remain at the same school for 3 or more years. Finally, elementary school principals were more likely to remain at the same school for 3 or more years than other principals.

This has profound effects on the possibility of school reform and the opportunity for principals to affect the school culture and students achievement. This is an incredibly important finding and deserving of much greater research into why the turnover rate is so high.

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