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Abstract

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Keywords

Education, Public schools, Employment, Retention, Graduates

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Abstract: Difficulties in recruiting and retaining well prepared teachers have plagued American urban schools for many years. This study examines the role teacher education can play in preparing teachers for urban schools. The yield rate and retention rates for teachers graduating from one urban college of education show that the mission of the program to prepare educators for the urban settings and a curriculum focused on providing theoretical and practical knowledge, skills and dispositions for instruction in high-needs classrooms has been successful. The yield and four-year retention data for graduates from this program indicate that the components of teacher preparation significantly associated with teacher employment after graduation and retention were: GPA and program major.

Keywords: Teacher education for the urban context, multicultural education, teacher retention

One Urban College of Education's Examination of Graduates' Employment and Retention in Public Schools

Introduction

America's urban schools which are often high-needs and high-poverty schools are in urgent need of well prepared and committed teachers (Kozol, 2005). Urban schools face problems in recruiting and retaining teachers, tend to be staffed by teachers who are less qualified as compared to teachers in the suburban schools, and face 50% greater teacher attrition than sub-urban schools (Ingersoll, 2004). Instability in the teacher work force adds to problems in school reform efforts in high-needs schools as 25% of these teachers leave the urban schools in the first year and about 50% leave in the first five years (Ingersoll; Lankford, Loeb, & Wyckoff, 2002). Thus, constant problems of teacher retention add to the vicious cycle of inequities faced by urban schools.

There has been much debate in the field about how colleges of education can contribute to alleviating this problem. Teacher preparation can develop and reinforce certain elements that are often cited as reasons for teachers staying longer in high-needs schools such as, a sense of mission to teach the underserved population, disposition for hard work, and persistence (Borman & Dowling, 2008; Milner, 2010). In addition, all teachers should receive substantive preparation including deep theoretical knowledge and practical experience, and training in becoming reflective practitioners and change agents (Freedman & Appleman, 2009; Hancock & Scherff, 2010; Milner, 2010).

This study was conducted in a college of education which is a part of a large research university. The college is located in an urban area and explicitly states in its mission that it is committed to preparing educators for the urban and high-needs settings. This college makes special efforts in recruiting candidates from minority ethnicities such as the *Early College Program* which worked within a large urban school system to recruit minority students into the teaching profession. In addition, programs such as *Advanced Academies for Future Teachers*, the *Noyce Scholarships* in the field of math and science provide further encouragement to minority candidates to become teachers. This college also develops *Cross-Career Learning Communities* which is comprised of student teachers, early career teachers, and veteran teachers teaching in urban schools. As part of their program, a majority of the candidates from this college do their field placements in high-needs and urban schools. Thus, the college not only encourages and provides incentives to candidates from minority ethnicities to become teachers; it also provides hands-on experience within the urban context during teacher preparation.

Our study aimed to investigate the effectiveness of intensive teacher preparation provided by this college on the number of initial teacher certification graduates who took up jobs in the urban school settings, their retention rates four years after graduation. For this college to be effective in fulfilling its mission of preparing urban educators, it was important that the college recruited and prepared higher percentages of minority ethnicity teachers than the state average, a substantial number of its graduates took employment in public schools, especially in high-needs schools, and stayed in these schools at higher rates than the retention rates reported by the state and other national research. Additionally, we wanted to investigate the components of the program that were significantly associated with teacher retention. Specifically, the research questions that guided this study were:

1. To what extent was this program effective in preparing graduates who took up jobs in urban schools? How many of these were still teaching four years after graduation?
2. To what extent was this program effective in recruiting candidates from minority ethnicities?
3. What factors associated with teacher preparation were significantly related to graduates getting jobs in public schools and their retention four years after graduation?

Background

Teacher attrition has been a serious problem in urban schools for many years and in 2003 the National Commission on Teaching & America's Future (NCTAF) called this problem a "national crisis" (p. 21). Urban schools have large numbers of poor and minority students, and probably are most in need of well-prepared teachers (Nieto, 2003). Ironically, these schools have far higher rates of teacher attrition as compared to sub-urban and rural schools. Teacher attrition causes further impediments in school effectiveness, teacher effectiveness and student achievement, and has high costs in terms of financial repercussions (Ingersoll, 2004).

Role of Teacher Preparation in Increasing Teacher Retention

A recent review of literature on trends in teacher attrition done by Bowman and Dowling (2008) revealed that the highest teacher turnover occurred in teachers' first years of teaching. Additionally, they found that teachers from minority ethnicities tended to have better retention than White teachers, teachers with higher measured academic ability (as measured by test scores)

had higher retention, and teachers in math and science had lower retention. Literature also suggested that female teachers had higher retention than male teachers and teachers in schools with higher proportions of minority and low-income students tended to have lower retention rates (Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2007; Hancock & Scherff, 2010; Ingersoll, 2003; Zumwalt & Craig, 2005). Researchers have voiced a need for recruiting more minority teachers into teacher education and providing all teachers specialized skills and knowledge to enable them to teach in high-needs settings with greater success rates in terms of retention (Milner, 2010).

Teacher education can and should play an important role in ensuring that their graduates are well prepared to teach in high-needs schools. Many studies (Gonzalez, Brown & Slate, 2008; Guarino, Santibanez, & Daly, 2006; Kukla-Acevedo, 2009) point to poor work conditions in urban schools, bureaucracy and lack of support from the school administration, high proportions of children with low achievement, and low salaries as reasons for high teacher attrition in urban schools. However, there is a need to look at the factors that enable teachers to thrive in the very same conditions. Some researchers have asked the question why some teachers “persevere, in spite of all the deprivations and challenges” (Nieto, 2003; p. 7). Nieto’s analysis suggests that good teachers stay in teaching, even in the most difficult of circumstances and with the most marginalized students, for reasons that have more to do with teaching’s heart than with either its physical setting or availability of resources. The teachers who stayed in urban schools loved, believed in, and respected the students with whom they worked.

Although the teachers in Nieto’s study acknowledged the inequities of society, were frustrated by the urban educational bureaucracy, and sometimes doubted their own efficacy, they believed that education and teachers could make a difference in students’ lives. To persevere,

they looked for options other than giving up on students and their dreams, such as participating in teacher communities and other opportunities to meet, talk, and work with others who saw teaching “as a way to live in the world” (Nieto, 2003; p. 101).

Based on Nieto’s analysis, teacher education programs that shape belief systems, attitudes, and develop a set of conceptual repertoires to help candidates become sensitized to the issues of diversity are more likely to produce teachers that are effective in teaching children in high-needs schools (Cochran-Smith, 2004; Milner, 2010).

Research on teacher attributes that contribute to greater retention suggests that teachers who are well prepared, with a sense of mission and opportunities to work in urban school settings during their preparation stay longer than national averages. For example, the Teacher Education Program Research Group (TEP) at Center X at the University of California, Los Angeles (UCLA) and the Multicultural Urban Secondary English Program (MUSE) at the University of California, Berkeley have shown using longitudinal data on their graduates that strong teacher preparation with an emphasis on urban education is positively related to teacher retention in high-needs schools (Freedman & Appleman, 2009; Olsen & Anderson, 2007; Quartz & TEP Research Group, 2003).

Foundations for Urban Teacher Preparation

Teacher preparation in our college is grounded in research on effective educator preparation for the urban context. This college of education reflects its mission to prepare effective educators for the urban settings by integrating opportunities within course work and practica to develop the professional knowledge, skills, and dispositions that are necessary to work in high-needs schools. In their course work and field placements candidates critically

examine theoretical and applied inquiry, their own practices, and the practices of others to make well-reasoned, data-based decisions about teaching, learning, and development (Bandura, 2001; Cochran-Smith & Lytle 2004; Darling-Hammond & Bransford, 2005; Feiman-Nemser, 2001).

Teacher preparation in this college empowers candidates to serve as change agents in the pursuit of social justice and equity (Cochran-Smith 2003; Fairbanks, et al. 2010; Nieto, 2003). Along with being reflective and deliberate in their actions (King & Kitchener, 2004), they continuously reflect on how educational policies and practices affect the lives of those they serve (Milner, 2010). The college also emphasizes that candidates be respectful of all learners and committed to the belief that all people can learn (Delpit, 1995; Dewey, 1933; Gay, 2010; Nieto, 2003; United States Department of Education, 2002). They are encouraged to be caring, ethical, and knowledgeable advocates for students and their families (Noddings, 2002; Pianta 1999). Candidates in the college come to view education as the pathway to personal and societal success and strive to maximize the potential of all learners in diverse educational environments (Goodlad, 2008; Kozol, 2005). Candidates are encouraged to be engaged with learners, their families, schools, and local and global communities (Lieberman & Mace, 2010). They are expected to understand and intentionally consider the dynamic interactions between learners and educators within complex socio-cultural contexts (Bronfenbrenner, 1986; Habermann & Post, 1998; Vygotsky, 1978; Wenger, 2002). In addition, candidates are expected to recognize the potential and use of technology to enhance learning and communication (Gee, 2003, Landow, 2006, Sherin, 2004; Wysocki, 2004) so that they see technology as a vital cultural tool with socio-cultural implications.

Since this college of education utilizes theoretically founded strategies of effective teacher preparation for the urban context, the purpose of this study was to find out how

successful the college and its programs have been in providing a consistent pool of teachers for the urban and high-needs schools. Specifically, we wanted to understand how intensive teacher preparation made a difference in how long the graduates of this college served in the high-needs settings, and whether retention rates were different for teachers who graduated with initial certification from different types of programs offered at this college.

Method and Data Sources

The context of this study is a college of education located within an urban research university. Our college works in collaboration with the diverse metropolitan schools in the area. The college has a mission to prepare educators who are (a) informed by research, knowledge and reflective practice; (b) empowered to serve as change agents; (c) committed to and respectful of all learners; and (d) engaged with learners, their families, schools, and local and global communities. This college offers a variety of programs and certifications such as: initial teacher preparation, advanced degrees, and endorsements. The programs emphasize preparing effective educators by providing opportunities to have hands-on experience in the urban school settings through its course work, practica, and field placements. Candidates in this college get a strong theoretical background in social justice and multicultural education.

Data Sources

This study looked at the percentage of teachers who graduated from this college in the year 2006, got jobs after graduation in state public schools, and stayed within the public school system four years upon graduation. Usually, in analysis of teacher retention, the categories developed by the National Center of Education Statistics (NCES): movers, leavers, and stayers are utilized (2002).

In this study, we depended upon the state's employment data to find out how many of our graduates from the year 2006 were still teaching. Our category of stayers was comprised of all graduates from this college who continued to teach in the state's public schools. The "stayers" in our study also included the graduates who moved from one school to another but still remained in the public school system within the state. Graduates who were counted as "leavers" also included graduates who might be teaching in other public school systems outside of this state or teaching in private schools.

The graduation and employment data for this study came from two sources: (1) the program completer data base maintained at the college and (2) the state accreditation agency's employment data base for the years 2006 through 2010. Completer data included information on race, gender, exit GPA, and type of program completed - middle/secondary (M/S), early childhood (ECE), special education (SpEd), health and physical education (HPE), and Art/Music/ Foreign Languages (A/M/F).

Employment data provided information on the employment status of our graduates in the state's public schools in the year of graduation (yield data) and one, two, three, and four years upon graduation. Since we were interested in knowing how many of our graduates from the year 2006 were employed in urban/high-needs schools we coded the schools where our graduates were employed as high-needs or not high-needs. In this study we considered schools with 50% or more free/reduced lunch rate as high-needs schools.

Participants

A total of 431 graduates with initial certification from the year 2006 were selected for this study. Of the 431 graduates from this year, 228 were White and 179 non-White. Table 1 shows the distribution of completers by race, gender, and program type. The programs with the

most completers were: middle/secondary, early childhood, and special education which offered initial certification in a variety of subject areas.

Table 1

Completers' Demographic Information (2006)

Gender	Race	M/S	ECE	SpEd	HPE A/M/F
Female	White	55	45	55	18
	Black	34	23	42	6
	Other	8	8	9	9
	N/A	2	6	13	3
Male	White	32	2	16	5
	Black	16	1	14	4
	Other	2	1	1	1
	N/A	2	0	3	1
total		151	86	153	47

Using the data matching program in the SAS software, ids for graduates from the year 2006 were matched with the state's employment data system. All our graduates who were found in the state's employment data in 2006 were the "yield" for our college. The definition of yield in this study was consistent with how the Board of Regents and the Georgia Professional Standards Commission uses the term yield and comprised of graduates that took jobs in the state's public school system upon graduation. We analyzed retention by matching the yield records from 2006 with the 2007 employment data to see if the graduates who took jobs in 2006 returned to the work force in 2007, calling it "one year out retention". Similarly, retention was computed for two, three and four years out by matching the 2006 college yield with the employment database from the years 2008, 2009, and 2010 respectively.

Data Design/Analysis

Descriptive analyses were done to obtain numbers of graduates by program type, yield rate, and retention rate four years out. The chi-square test analysis was also performed by breaking completers by the race/ ethnicity, in order to find out how well the college prepared and produced the diverse teacher candidates, compared to that of the state (2006).

In addition to descriptive statistics, logistic regression was performed to investigate effects of components of teacher preparation on graduates' employed (yield) and retention (Hancock & Sherff, 2010; Hosmer & Lemeshow, 2000). The dependent variable in this study was teacher retention. This was a binary outcome with "0" being a teacher who is no longer employed and "1" being a teacher employed in the public schools. We classified graduates from this college as either "0" or "1" in their yield year and first, second, third, and fourth year of teaching. Five logistic regressions were conducted, in order to investigate the significance of teacher education components on teacher employment from the yield year through four years after graduation. The analysis with a dichotomous outcome variable showed the teaching status of our graduates as: yield year (got a job after graduation or not), one year out (teaching or left after one year of teaching), two years out (teaching or left after two years of teaching), three years out (teaching or left after three years of teaching), and four years out (teaching or left after four years of teaching) respectively.

We selected five independent variables which included teacher characteristics and program components. Among the five predictor variables, four were categorical variables (gender, race/ethnicity, teacher preparation programs, degree), with two or more levels. Gender was coded as "0" for females (the reference group) and "1" for males. Whites were the reference (coded 0) in the race/ ethnicity variable and were compared with Blacks (coded 1), and other

minorities (coded 2). The middle/secondary program was reference group in the variable of teacher preparation programs (coded 0) and was compared with early childhood education program (coded 1), special education program (coded 2), and other programs including health and physical education and art, music, and foreign languages (coded 3). Bachelor's degree was reference group in the degree variable (coded 0) and was compared with master's (coded 1). Program exit GPA was the only continuous variable in the analysis. Exit GPA was a cumulative score for completers from courses including: core teacher education courses, methods courses, and field-based practica and student teaching courses, all of which made explicit efforts in providing the students with a knowledge base and hands-on experience for becoming effective urban educators.

Results

Yield and Retention Rates for Our Graduates

As shown in Table 2, 249 of our 431 completers (58%) from the year 2006 became employed in the state's public school system. On average across the four years upon completion 76% of our completers that got jobs after graduation were still teaching in state's public schools.

Table 2

Retention Rate Comparison: College Graduates vs. State Average

	Retention Rates			
	One year	Two years	Three years	Four years
Completers in this college	94.4%	89.2%	84.3%	75.9%
State Average*	93.8%	80.9%	73.0%	66.9%

Source*: Georgia Professional Standard Commission, 2008

The college's retention rate was higher than the average retention (66.9%) for teachers in this state after their fourth year in the teaching profession (Georgia Professional Standard

Commission, 2008). The year-wise comparison of retention for graduates from this college with the state average is provided in Table 2.

Table 3

Yield and Retention Rates for Completers in High-Needs Urban Schools (2006)

Total	Yield Rate	Retention Rates			
		One year	Two years	Three years	Four years
249	154 (61.8%)	142 (92.2%)	133 (86.4%)	116 (75.3%)	95 (61.7%)

Of total 249 graduates who took up jobs in public schools after graduation, more than 62% (154 graduates) started their careers in high-needs urban schools (defined as 50% or more children with free or reduced lunch). Four years later, of the 154 graduates who started teaching in high-needs schools, 62% (95 graduates) were still teaching in urban schools (Table 3).

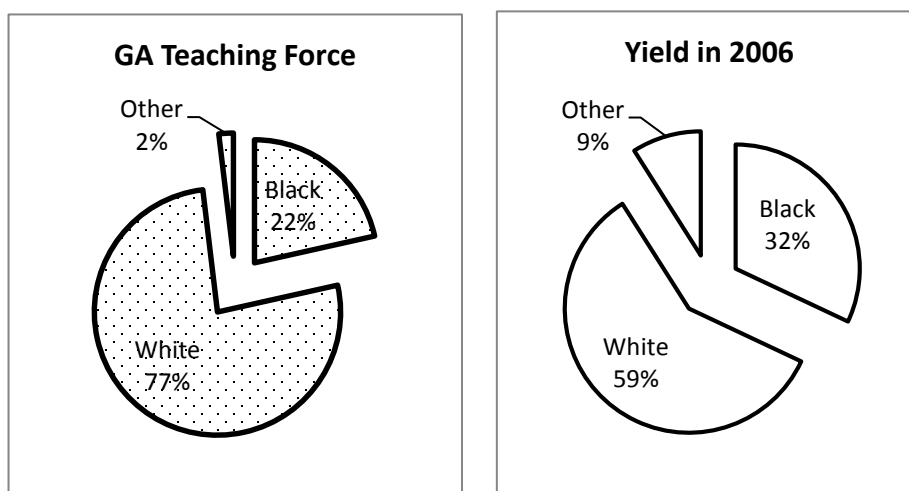
Preparing Diverse Educators

Since a primary focus of this college was to prepare teachers from minority ethnicities, we wanted to find out how the ethnicity data for the graduates from this college compared with the teacher demographics in the state's public schools. A chi-square test showed that this college was successful in producing significantly higher numbers of minority teachers than Georgia's teaching workforce (2006). Figure 1 shows the racial diversity of teachers who graduated from this college and took jobs in public schools. Of the 249 graduates from the year 2006 who started teaching in public schools, 32.1% were Black, 59.4% were White and 8.5% belonged to other minorities. In comparison, the state's teaching workforce in 2006 was 21.5% Black, 76.6% White, and 2.0% other minorities (Georgia Professional Standard Commission, 2006). A chi-square test conducted to compare the racial background of teachers from this college to that of

the state's teaching force (2006) was found to be statistically significant, $X^2(2, N=234)=80.66$, $p<.0001$. The percent of minority teachers (32.1%) produced by the college was significantly higher than of the state teaching force (23.5%) as shown in figure 1.

Figure 1

Racial Composition of College Yield Compared with Georgia Teaching Workforce (2006)



Factors Influencing Teacher Retention

We conducted five logistic regressions to understand if the factors influencing teacher retention changed from one year to the next for each year after graduation up to the fourth year. Table 6 shows five logistic models with a list of significant independent variables. There were no statistically significant effects of race/ethnicity and degree type (undergraduate or graduate) on graduates' ability to find jobs in public schools and their retention one year through four years after graduation. For the better prediction of models, the outliers were excluded through the procedure of standardizing the residual of the difference between the actual probability and the

predicted probability for each case then dividing it by an estimate of its standard deviation. The cut-off criterion of detecting outliers was greater than $|2.58|$ (z-score when $p=0.01$).

Goodness of Fit in Overall Models. The Hosmer-Lemeshow goodness of fit (Hosmer and Lemeshow, 2000) of five logistic regressions were greater than 0.05, indicating that there is no difference between the observed and predicted values of the dependent variables, thus implying a goodness of fit (refer Table 4). The omnibus tests of the models supported the evidence of overall relationship between independent variables and the dependent variable: (χ^2 with 5 df=145.47, $p<.0000$ for the yield year; χ^2 with 5 df=130.64, $p<.0000$ for one year out; χ^2 with 5 df=106.67, $p<.0000$ for two years out; χ^2 with 5 df=87.94, $p<.0000$ for three years out; χ^2 with 5 df=70.96, $p<.0000$ for four years out).

Table 4

Hosmer and Lemeshow Test

Model	Chi-square	df	Sig.
Yield year	9.05	7	0.25
1 year out	7.46	7	0.38
2 years out	11.45	7	0.12
3 years out	7.69	6	0.26
4years out	8.76	6	0.19

Since logistic regressions in this study dealt with multiple independent variables, which can cause an inflation the variances of parameter estimates from a high correlations between variables, the Variance Inflation Factor (VIF) for each independent variable was examined (refer Table 5). The VIF for all independent variables was found to be below 2.0 which implied that there was no evidence of multicollinearity (P.D. Allison, 1999).

Table 5

Diagnostics of Multicollinearity among Five Independent Variables

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.434	.206		2.101	.036		
Gender_1	-.130	.058	-.111	-2.251	.025	.865	1.157
GPA	.126	.050	.122	2.495	.013	.879	1.137
Degree	-.299	.048	-.290	-6.172	.000	.948	1.055
Program	-.097	.023	-.201	-4.289	.000	.952	1.051
Race	-.028	.035	-.037	-.796	.426	.972	1.029

Table 6

Logistic Regression Teacher Retention- from One year through Four Years after Graduation

Predictor	Yield year			1 year out			2 years out			3 years out			4 years out		
	B	SE	OR	B	SE	OR	B	SE	OR	B	SE	OR	B	SE	OR
Gender (Male)	-0.86**	0.30	0.42	-0.74**	0.29	0.48	-0.52*	0.29	0.60	-0.50	0.29	0.61	-0.38	0.29	0.68
Race															
Black with White	-0.23	0.29	0.80	-0.11	0.28	0.90	0.06	0.26	1.07	-0.14	0.26	0.87	-0.23	0.25	0.80
Others with White	-0.64	0.47	0.53	-0.33	0.45	0.72	-0.03	0.43	0.97	0.06	0.42	1.07	0.20	0.41	1.22
Degree (Undergrad.)	-0.37	0.41	0.69	-0.06	0.38	0.47	0.01	0.36	1.01	0.29	0.28	2.17	0.06	0.35	1.06
Program**															
M/S with ECE	2.51**	0.76	12.2	2.10**	0.56	8.15	1.56**	0.43	4.77	.153**	0.38	4.63	1.30**	0.33	3.65
M/S with SpED	-1.96**	0.29	0.14	-1.71**	0.28	0.18	-1.52**	0.27	0.22	-1.23**	0.26	0.29	-1.11**	0.27	0.33
M/S with HPE /A/M/F	0.05	0.44	1.05	0.22	0.43	1.24	0.29	0.38	1.33	0.43	0.4	1.54	0.29	0.38	1.34
GPA	0.89**	0.30	2.45	0.89**	0.29	2.43	0.85**	0.28	2.33	0.90**	0.26	2.47	0.76**	0.26	2.14
Constant	-2.20	1.19	0.11	-2.52	1.15	0.08	-2.62	1.09	0.07	-3.22	1.01	0.04	-2.94	1.01	0.07

Note. OR=odds ratio; Significant predictors listed, based on alpha of 0.05; *p<.05; **p<.01

In the analysis of employment of our graduates soon after program completion (yield data), three variables were found to be statistically significant in predicting employment after graduation. Completers from early childhood, middle/secondary, and art/music/foreign language programs had higher yield rates than special education. Completers from the special education program were 0.86 times less likely to take employment in public schools, soon after graduation, than completers from middle/secondary program (the reference group). Gender was a significant factor and males (the reference group in the analysis was females) were 0.58 times less likely than female graduates to get employed in public schools, soon after program completion. There was an also positive relation between exit GPA and employment of graduates; which showed that graduates with higher GPA were 2.45 times more likely to take employment in public schools soon after graduation.

In the retention analyses one year and two years after graduation, three predictors showed statistical significance for predicting teacher retention. Gender was a significant factor on retention and males were less likely than female graduates to be teaching in public schools (0.52 times after one year teaching; 0.40 times after two years teaching) after program completion. Completers from the special education program were 0.82 times (one year after teaching) and 0.78 times (two years after teaching) less likely to be teaching in public schools than completers from the middle/secondary program (the reference group). There was also a positive relation between exit GPA and teacher retention; which showed that graduates with higher GPA were 2.43 times more likely to be teaching in public schools at the end of the first year of teaching and 2.33 times at the end of the second years of teaching.

In the analysis for three years and four years of retention, the gender variable did not show a significant effect on teacher retention. This suggested that after the second year of

teaching, male and female graduates were equally likely to continue in the profession. Program type and exit GPA however continued to have a significant impact on teacher retention up to four years after graduation. Graduates from the early childhood were more likely than the graduates from the middle/secondary program to remain in teaching for all of the four years after graduation. Completers from the special education program were consistently less likely to remain in public schools than the completers from the middle/secondary program (0.71, and 0.67 times after three years and four years of graduation respectively). The significant effect of the program-exit GPA suggested that teachers with higher GPA were two times more likely to be teaching in public schools, four years after graduation.

A finding that needed further examination was that graduates from the special education program were less likely to stay in the state public schools than their middle/secondary counterparts. We looked at the data for special education completers for the year 2006 by their major and found that out of the 109 students who had majored in Behavioral and Learning Disorders (BLD), only 10 got jobs in the state's public schools (see Table 5). The low yield for our BLD graduates was an anomaly in the year 2006 when we compared it to the yield in the subsequent years. The yield for our completers who majored in BLD in the years 2007 and 2008 was 95% and 93% respectively.

Table 7

Yield Rate for Graduates of Special Education Program by Majors for 2006

	Program Description	Total (#)	Yield(%)
Education	Behavior/Learning Disabilities	109	10 (9.2%)
	Communication Disorders	12	2 (16.7%)
	Multiple and Severe Disability	32	28 (87.5%)
	Total	153	40 (26.1%)

Upon further analysis we realized that the adaptation of the *Highly Qualified Teacher* (HQT) revised plan in the state (Department of Education, 2006) as part of No Child Left Behind (US Department of Education, 2002) impacted BLD graduates the most because they did not possess a core academic content field specialization. The problem in getting jobs in public schools after completion in 2006 continued to negatively impact the retention rates of the special education graduates in comparison to the middle/secondary graduates four years after graduation. In the subsequent years, the college made changes to the program design and therefore, subsequent graduates met the criteria of highly qualified and were as successful as other content teachers in securing jobs in public schools.

In sum, due to the special circumstances arising out of the adaptation of the Highly Qualified Teacher plan in our state, teachers graduating from the early childhood and middle/secondary programs tended to have greater chances of taking employment in public schools and higher retention than the other programs. Exit GPA was a strong factor in predicting teacher retention and doing well in the teacher preparation program impacted their retention in schools even four years after graduation.

Discussion

This study has implications for policy as well as practice of teacher education. The mission of this college of education is to prepare teachers to work in urban and multicultural settings. As part of its curriculum, this teacher preparation program includes targeted interventions to help its candidates become sensitized to the issues of urban schools, empowering them with skills, knowledge and dispositions that contribute to greater retention in the urban settings. The college's urban location and mission to prepare teachers to teach in urban and

multicultural settings probably attracted more minority students than other colleges, who in-turn stayed longer in urban settings as teachers than non-minority teachers.

Since the purpose of this study was to understand how teacher preparation could affect retention of teachers in high-needs schools, we focused only on program characteristics such as degree type (graduate or undergraduate), program type (middle/secondary, early childhood, special education, health and physical education, and art/music/foreign languages), and program exit GPA as likely contributors to retention. A limitation of this study is that we did not include school level variables such as free/reduced lunch rates (poverty index), school climate, class size, and other schools and student level variables. Future research might incorporate a nested model with teacher level variables nested within school level variables. Having a nested model would allow researchers to investigate if the program level variables still held significance when school and student level variables are considered. Additionally, data from multiple years of graduates, rather than a single year as used in our study, could enhance understanding about the extent to which the results are consistent over time.

Despite these limitations, the analysis of yield rate and four years of employment data on our completers showed that this college was successful in preparing teachers that took up jobs in high-needs schools with higher retention than the national average; 62% vs. 50% (Ingersoll 2004; Lankford, et al. 2002). Overall, the graduates from this college had 76% retention in public schools four years after graduation, as compared to the 67% retention state wide for teachers at the end of their fourth year in the teaching profession.

Consistent with the calls from policy makers and researchers, this college has been successful in recruiting teachers of minority ethnicities (Cochran-Smith, 2004; Milner, 2010). Proportion of teachers from minority ethnicities prepared by this college was significantly higher

than the state average and the majority of our teachers took up jobs in high-needs schools. As mentioned earlier, the college had made focused efforts in recruiting candidates from minority ethnicities through a variety of programs. Thus, an explicit mission of the college of preparing teachers for the urban settings had probably been of influence in recruiting candidates from diverse ethnicities and in preparing teachers that took up jobs in urban and high-needs schools.

Among the factors that were used as likely predictors of teacher retention, race/ethnicity did not turn out to be significant in the logistic regression model. Contrary to other research (Bowman & Dowling, 2008) our results indicated that graduates from all ethnicities were equally likely to stay in the profession. Thus, all our graduates were equally competent to teach in high-needs schools.

The positive effect of exit GPA on retention was consistent with prior research (Borman & Dowling, 2008; Milner, 2010). This study used program-exit GPA as a proxy for program preparation. Since higher GPA increased the likelihood of teacher retention even four years after graduation, we could conclude that students who did well in the program, stayed longer in the profession (Borman & Dowling, 2008; Milner, 2010). The result could also imply that the program design centered on effective teaching in the urban context enabled teacher candidates to acquire the skills, knowledge, dispositions essential to teach in the urban settings. Further research is however necessary to show that GPA can be considered a program characteristic besides reflecting student ability. A study comparing exit GPAs of different teacher education colleges and its association with employment and retention is needed to show that similar GPAs from different programs do not have the same impact on retention, and that GPA also reflects the content and rigor in preparation specific to the program.

Among the different programs, our analyses showed that graduates from the early childhood and middle/secondary programs were more likely to get employed in public schools and had higher retention four out as compared to the graduates from the special education program. However, further analysis revealed that 2006 was a unique year when the adaption of the HQT plan under the NCLB (US DOE, 2002) impacted the graduates in special education who did not specialize in a core academic content field. Since this definition made it hard for the special education graduates to find employment in 2006, their retention rates were also impacted in comparison to graduates from other programs.

Conclusion

This study was able to address the questions we set out to investigate. An analysis of four years of employment data for 2006 completers showed that this college was successful in preparing teachers that took up jobs in high-needs schools with retention rates that were higher than the state's retention rates. The focused efforts made by the college to recruit minority teachers seemed to have played a role in preparing ethnically diverse teachers. The proportion of minority teachers prepared by this college who took jobs in public schools in the year 2006 was significantly higher than the proportion of minority teachers in the state's workforce in that year. Among the factors that were related to the retention of teachers in public schools, the exit GPA of our graduates played the most important role in their getting employment in public schools, as well as retention in public schools four years after graduation. Thus, in keeping with its mission, this college was able to address the problem of providing well prepared teachers for high-needs schools.

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