ILLINOIS EDUCATION RESEARCH COUNCIL

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Paths to Teaching

John B. Lee, Suzanne B. Clery and Jennifer B. Presley

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John B. Lee is President of JBL Associates, Inc. Bethesda, Maryland. Suzanne B. Clery is Senior Analyst with JBL Associates, Inc., Jennifer B. Presley is Director of the Illinois Education Research Council. This work was funded by the IERC.

SOUTHERN ILLINOIS UNIVERSITY EDWARDSVILLE, EDWARDSVILLE, ILLINOIS 62026-1064
Telephone: 618.650.2840 E-Mail: ierc@siue.edu Web site: ierc.siue.edu

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ABOUT THIS REPORT

IERC 2001.1, *Paths to Teaching*, uses the national Baccalaureate and Beyond (B&B: 93-97) longitudinal data base to look at the early career paths of 1993 college graduates. In Spring 2001, we were asked whether 'the best and the brightest' were going into and staying in teaching. The B&B data allowed us to address these questions from a national perspective, and to provide additional information about who is going into and staying in teaching. What we could not do was address the question specifically for Illinois teachers. This is because there are not yet state level data that tracks students from college to the workplace. In the future, it might be possible for Illinois to piggyback onto a national/federal longitudinal study in order to ensure a large enough sub-sample of respondents to analyze the data just for Illinois. Another option might be to develop a statewide data system that links school data to higher education data, and to workforce information. In the meantime, this study of national data can suggest paths to policy and practice for Illinois as we strive to increase the quality of teaching and learning for all of the state's students.

We thank Dianne Ashby, Hazel Loucks and Dwight Smith for their helpful comments on an earlier draft of this paper. The final report is, of course, the responsibility of the authors, and their conclusions are our own.

Jennifer B. Presley
Director
Illinois Education Research Council

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HIGHLIGHTS

This report traces the early career patterns of teachers who graduated from college in 1993. The results provide information on which college graduates became teachers, where they taught and whether they left teaching within three years.

IT IS NOT EASY TO PREDICT WHO MAY BE POTENTIAL TEACHERS WHEN STUDENTS ARE IN COLLEGE. *Some undergraduates who completed all the steps to become a teacher did not teach, and some who showed no apparent preparation to teach ended up in the classroom. The results also show that over one-third of those who taught were not employed in a traditional K-12 public school.*

- ✓ Preparing college graduates who teach is the job of the whole institution:
  - 15% of college graduates teach within three years
  - Two in five beginning teachers had not prepared to teach while in college
- ✓ 30% of those who prepared to teach while in college did not teach within three years.
- ✓ 16% of certified teachers did not teach.
- ✓ Less than two thirds (63%) of beginning teachers were teaching in K-12 public schools. Almost 13% were teaching in private schools, 7% were teaching in pre-K, and 18% were doing "some other sort of teaching."
- ✓ 40% of beginning public school teachers had taken community college classes, compared to 34% of non-teachers.

TEACHERS' PERSONAL AND ACADEMIC CHARACTERISTICS VARY BY GRADE TAUGHT. *There is no 'typical' teacher. High school teachers are more similar to non-teaching college graduates than to elementary grade teachers. Middle-grade teachers fall between the two groups.*

- ✓ 44% of beginning high school teachers were men, compared with 10 % of elementary school teachers.
- ✓ New high-school teachers' college admission scores are similar to non-teachers – 24% have scores in the top quartile.
- ✓ New elementary teachers are less likely to score in the top quartile – just 8% have scores in the top quartile.

JOB SATISFACTION, SALARY, AND SCHOOL LOCALE AND POVERTY LEVEL. *It appears that some teachers work for lower salary with similar or higher levels of job satisfaction when they are in non-urban areas that have few high-poverty schools.*

- ✓ Approximately one third of beginning teachers teach in non-urban areas. They are paid the lowest salaries (40% are in the bottom salary quartile, while only10% are in the top quartile), but almost none (3%) are working in high-poverty schools. More of these teachers report being very satisfied with society's esteem for teaching than city or suburban teachers. (Although it should be noted that only 15% reported being very satisfied. It is evident that most teachers, regardless of where they teach, do not feel that the larger society values their efforts.) On other aspects of job satisfaction, non-urban teachers report satisfaction levels that are similar to teachers in city and suburban schools. Low salaries do not lead to lower job satisfaction for non-urban teachers.
- ✓ Another third of beginning teachers teach in city schools. A much lower percent of teachers in city schools are among the lowest paid teachers (17% in the lowest salary quartile, 28% in the

top quartile). While one in five (19%) are teaching in a high-poverty school, almost half (49%) are teaching in a low-poverty school. Only 17% of city teachers were very satisfied with student learning compared to 28% of suburban teachers (23% of non-urban teachers were very satisfied).

- ✓ Suburban teachers are also less likely to be among the lowest paid teachers (16% in lowest quartile) and most likely to be among the highest paid teachers (41% in top quartile). More than one in ten (12%) works in a high-poverty school and suburban teachers are generally more satisfied with their jobs than city teachers.
- ✓ Overall, 35% of teachers in high-poverty schools had beginning salaries in the top quartile, compared to 22% of teachers in other schools. While the difference did not meet the 95% level of significance, the data suggest that salaries in high-poverty schools may be higher than in other schools. And yet teachers in high-poverty schools were less satisfied than those in low-poverty schools with the school environment (39% compared to 46%).

Distinguishing Characteristics of Teachers by Locale and School Poverty Level:

- ✓ More city teachers graduated from a selective higher education institution than those in non-urban school settings (35% compared to 22%).
- ✓ More teachers in city schools were female than teachers in non-urban schools (83% compared to 67%).
- ✓ Teachers in high-poverty schools were more likely to be 26 years old or older when they started teaching (41%), more likely to be minority (41%) and more likely to be female (88%).

WHICH NEW TEACHERS LEAVE PUBLIC SCHOOL TEACHING?

- ✓ 38% of those with no certification compared to 12% of those who were certified
- ✓ 29% of those with college admission scores in top quartile compared to 15% of those not in the top quartile.
- ✓ 28% of those with an 'Other' major, compared to 22% of those with Liberal Arts majors, 19% of those with Science/Math/Engineering/Technology (SMET) majors, and 11% of those with Education majors.
- ✓ 24% of those with a teaching salary in the bottom quartile compared to 5% of those with salaries in the top quartile.
- ✓ 24% of those who are dissatisfied with school environment, 22% of those dissatisfied with student discipline and 19% of those dissatisfied with student learning.
- ✓ 22% of those who had no induction program compared to 12% of those who had an induction program.
- ✓ Non-urban teachers – who have the lowest salaries – leave at rates that are similar to teachers in other locales. Nor is there a difference in leaving rates by school poverty level.

KEY RECRUITMENT STRATEGIES INCLUDE:

- ✓ Providing beginning college students with a realistic set of expectations and experiences regarding teaching. Use college work-study, internships and volunteer programs to place college students in local schools early in their college careers.
- ✓ Including community colleges early on in students' school experiences.

KEY RETENTION STRATEGIES INCLUDE:

- ✓ Getting non-certified teachers certified
- ✓ Providing induction programs
- ✓ Involving new teachers in school improvement
- ✓ Improving the lowest beginning salaries

INTRODUCTION

This report traces the early career patterns of teachers who graduated from college in 1993. Specifically, it identifies the college experiences of those graduates who go into teaching within three years of graduating from college. The longitudinal data allow us to track the various routes they take from college to teaching and identify factors associated with their leaving teaching within three years. The results help us understand who goes into teaching and who leaves. The tables show relationships between beginning teachers' college preparation and their entry into teaching, and in some cases their leaving. The results also point to some critical policies that can help keep teachers on the job once they have taken a teaching position.

DATA SOURCES AND DEFINITIONS

This report uses Baccalaureate and Beyond (B&B:93-97). This database is produced by the National Center for Education Statistics (NCES), which is part of the U.S. Department of Education. The B&B survey follows a cohort of more than 11,000 college students, who were seniors in 1993, for three years after finishing college. The sample was weighted to represent all college students. The results provide information on who became a teacher, where they taught and whether they left teaching within three years. The results can be generalized nationally. Unfortunately, the sample is not large enough to examine the conditions of teaching specifically for Illinois college graduates.

The group of new teachers included in this report is only part of the story. Many teachers come to the classroom after years of other employment or continuing their education after their baccalaureate degree. Because the individuals in the sample were chosen when they were seniors in college and followed for three years, it is not possible to include teachers who entered the profession later in their lives.

Teachers in public schools are the main focus of this report, because they are of most importance in numbers and of most concern in public policy debates. Some attention is given to teachers in private schools or those who say they are teaching below the kindergarten level.

We take care in the report to identify differences between groups only when they reach the 95 percent level of significance, using t-tests. This means that we can be 95 percent sure that the differences would occur if we were to examine the total population of college graduates in 1993.

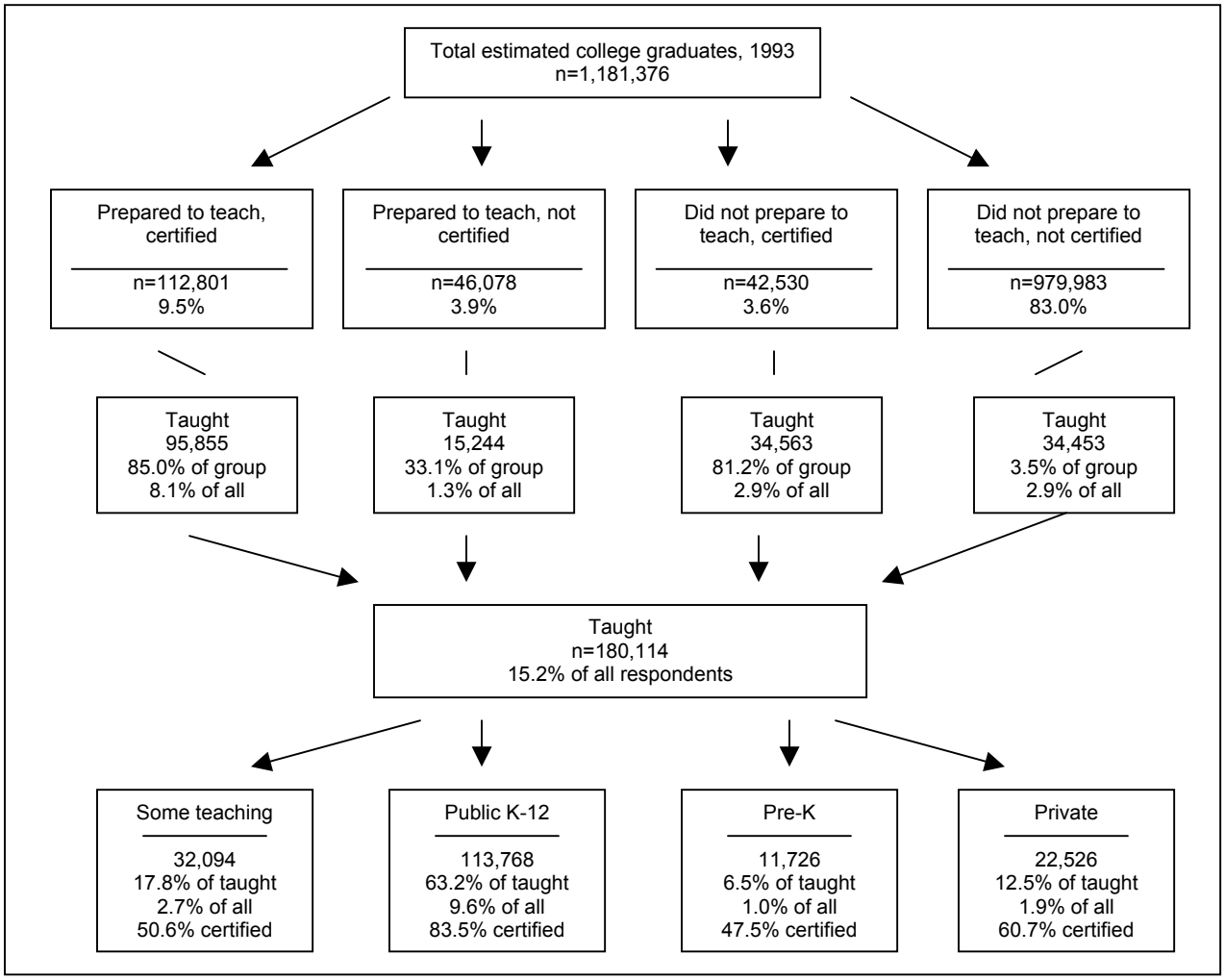
PIPELINE TO TEACHING

The first set of figures displays the pipeline from college to teaching. The data from this analysis show that college graduates enter teaching through many different paths.

Becoming a Teacher

Figure 1 documents the flow of students from college into teaching and shows that a large number of potential teachers do not teach, while many graduates who showed no apparent interest or preparation in education do teach.

Figure 1. — Pipeline of College Graduates Who Taught: 1993-97



SOURCE: U. S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

As can be seen in Figure 1, 15 percent of all college graduates ended up teaching somewhere. Teaching includes anyone who indicated they taught at any level from pre-kindergarten through high school. The majority (63 percent) taught in public schools at the kindergarten through the high school level. This report focuses on this group of public school teachers but also provides comparative information on other teachers.

Several additional points are important in figure 1. An estimated 180,114 college graduates became teachers.[i] Of that group, 95,855, or 53 percent, prepared to teach and received a teaching certificate. (Graduates were categorized as preparing to teach if education was their major or

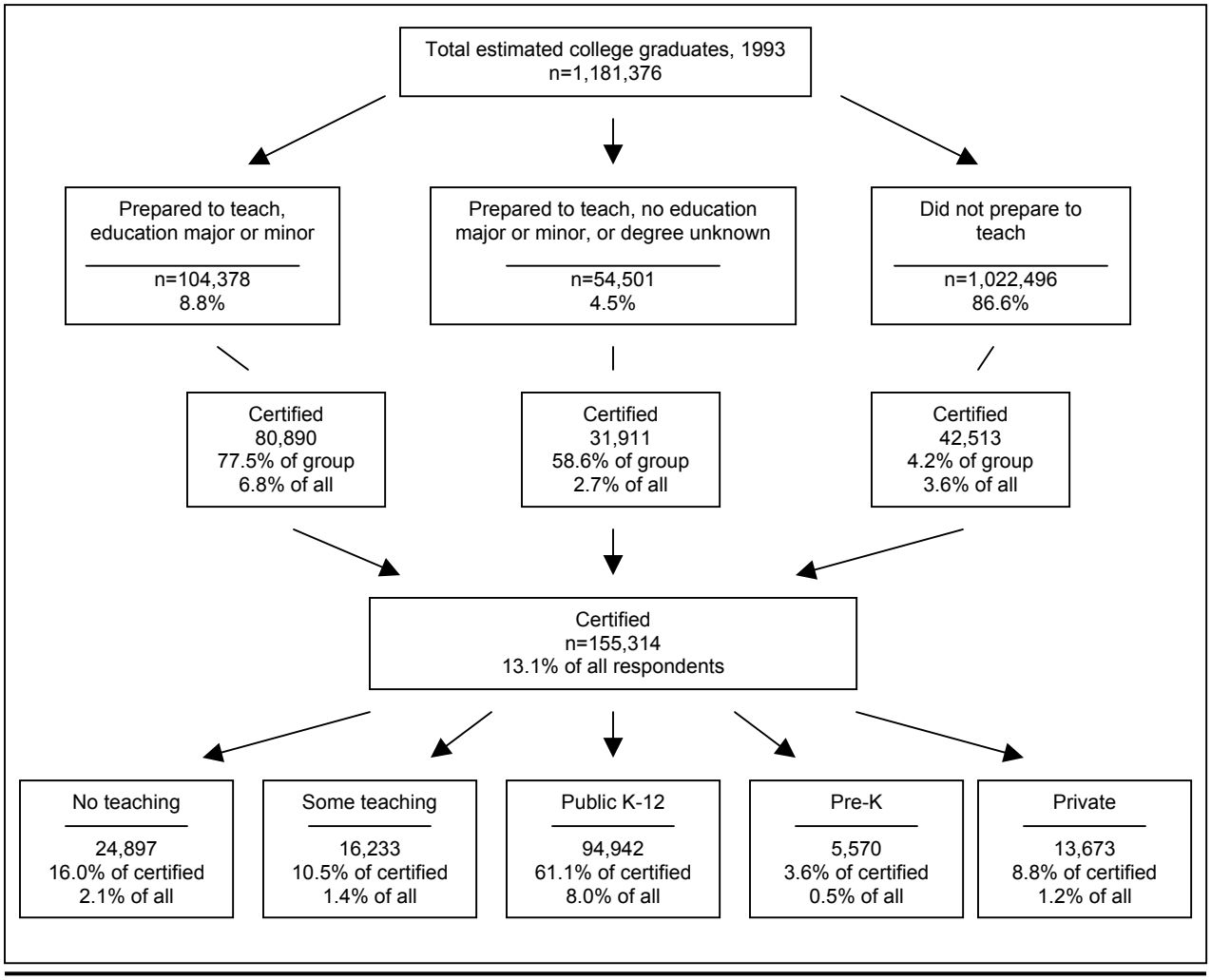
minor field of study, or they student taught during their postsecondary education.) The rest came to teaching through other paths.

TEACHER CERTIFICATION

Figures 2 and 3 show the flow of graduates from college who were certified to teach or not certified to teach. Certification is self-reported and requirements vary among states, so there may be some imprecision and non-comparability in this self-classification.

Of the group who reported that they had received certification, 24,897, or 16 percent, did not teach at all within the three years after college (figure 2) while 94,942 (61 percent) taught in a public school. The rest taught in private, pre-kindergarten, or in did "some teaching". The category called "some teaching" means that insufficient data are available to decide exactly where the respondent taught.

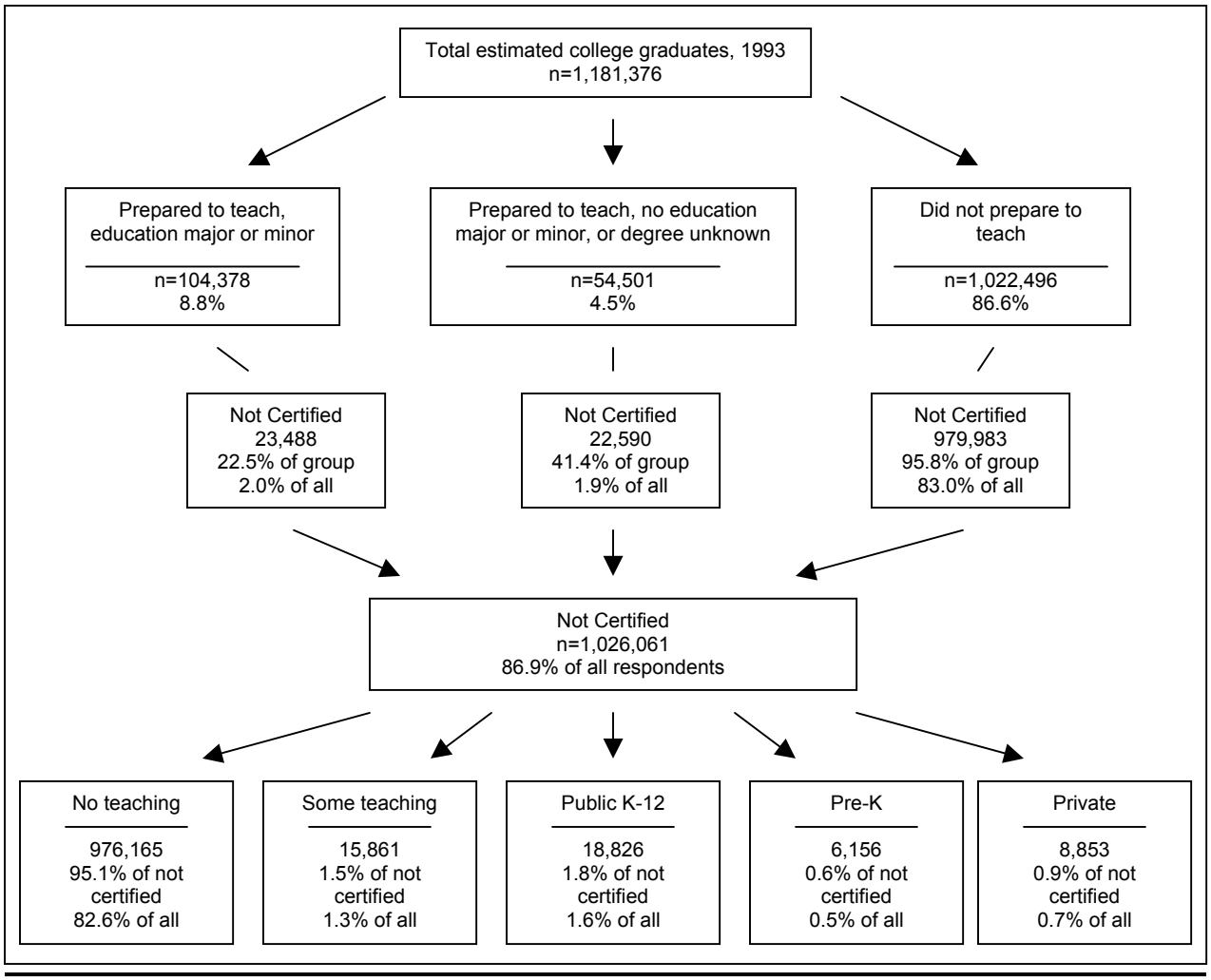
Figure 2. — Pipeline of College Graduates Who Were Certified to Teach: 1993-97



SOURCE: U. S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

The final flow chart (figure 3) shows what happened to those graduates who were not certified to teach. Approximately eighty-seven percent of the college graduates in 1993 did not obtain certification by 1997 (figure 3). Nearly 5 percent of those without a certificate did teach and less than 2 percent said they taught in a public school.

Figure 3. — Pipeline of College Graduates Who Were Not Certified to Teach: 1993-97



SOURCE: U. S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

These results show that it is not always easy to predict who may be potential teachers. Some undergraduates who completed all the steps to become a teacher did not teach and some who showed no apparent preparation to teach ended up in the classroom. The results also show that over one-third of those who taught were not employed in a traditional K-12 public school.

CHARACTERISTICS OF THOSE WHO ENTER TEACHING

The concept of educational quality is a difficult one on which most people can agree in general, but agreement is lost when the details are considered. One of the common stereotypes about the training of teachers is that they are not the most able college students and their educational experiences do not represent the most rigorous that our colleges and universities have to offer. The facts suggest that reality is more complicated than the stereotype. The following tables and charts identify some of the general factors that differentiate college graduates who go into teaching from those who took other paths after college. Further, the results describe how teachers who taught in different types of schools varied from each other and describe who leaves teaching within three years of starting.

Variables that describe the teachers include the type of college or university they attended, what majors and minors they reported, special academic recognition they received, whether they took remedial courses, their grade point average, entrance test scores, race/ethnicity, sex, and age.

College Experience

The tables distinguish between teachers in public schools and those who teach in private settings or said they taught below the kindergarten level. Table 1 shows teachers' majors. About half (48 percent) of the beginning public school teachers majored in education and did not have a major in any other field. The other half had majors outside of education, or in addition to their education major. Ten percent had science, mathematics, engineering or technology (SMET) degrees. Liberal arts accounted for 24 percent of the teachers and 18 percent majored in "other" fields. Other academic majors include everything that does not fit in the previous categories. Examples include business, vocational fields, recreation, or performing arts. Differences across other types of schools were not statistically significant.

Table 1.—Percentage Distribution of Teachers According to Major Field of Study, by Type of School: 1993-97

	SMET	Liberal arts	Education	Other
Total	10%	25%	47%	19%
Type of school				
Public K-12	10	24	48	18
Private	11	30	43	16
Pre-kindergarten	3	30	36	30
Some teaching	8	35	30	27

NOTE: Rows may not sum to 100% due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

Colleges and universities were divided into two groups based on their mission. The group of selective institutions includes Research Universities and Liberal Arts I colleges.[ii] Together they enrolled 37 percent of the college graduates in the B&B sample. The remaining 'other' colleges enroll the other 63 percent and, for the most part, represent less selective institutions. Table 2 shows that 73 percent of the public school teachers attended other institutions compared with 62 percent of those who did not go into teaching.

Table 2.—Percentage Distribution of Teachers and Non-Teachers According to Type of Institution Attended, by Type of School: 1993-97

	Selective institution	Other
Total	37%	63%
Teachers: Type of school		
Public K-12	27	73
Private	30	70
Pre-kindergarten	34	66
Some teaching	39	61
Non-Teachers	38	62

SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

Table 3 shows that public school teachers were more likely to have taken community college classes than other teachers. The data do not contain information on the number of units a student transferred from a community college. Some of these students may have taken one class at a community college and others may have finished an Associates degree.

Table 3.—Percentage Distribution of Teachers and Non-Teachers According to Community College Credit Status, by Type of School: 1993-97

	Obtained community college credits	Did not obtain community college credits
Teachers		
Type of school		
Public K-12	40%	60%
Private	31	69
Pre-kindergarten	32	68
Some teaching	34	66
Non-Teachers	34	66

SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

Personal Characteristics

AGE WHEN ENTERING TEACHING

Beginning public school teachers who graduated in 1993 and entered teaching by 1997 tended to be older when they graduated than those who did not go into teaching (table 4). Nineteen percent of public school teachers were less than 22 years old during their senior year[iii] compared with 26 percent of those who did not go into teaching.

RACE/ETHNICITY

The sample size is not large enough to provide a detailed analysis of race and ethnicity. All minority groups combined accounted for 15 percent of the public school teachers and 17 percent of the graduates who did not go into teaching.

EDUCATIONAL MERIT

Four measures of educational merit are included. The first measure is whether college graduates took a remedial class. This measure suggests the adequacy of pre-college preparation. The second measure is college admission test scores. These represent ACT or SAT scores, which predict early performance in college. The third measure is academic honors that the student received in college. The fourth measure is grade point average in college. Graduates who place higher on these measures will have a wide array of options in the labor market and graduate education.

- Graduates reported whether they took a remedial class. The percent of public school teachers who had taken a remedial class (8 percent) was not statistically different from the 6 percent of non-teachers (table 4).
- Overall, public school teachers were less likely to be in the upper-quartile of admission test scores (15 percent) than graduates who did not go into teaching (25 percent). But we show in a later section that about one quarter of high-school teachers had test scores in the top quartile -- similar to non-teachers. Just 8 percent of those teaching at the elementary level had scores in the top quartile.
- Public school teachers were more likely to report that they had received honors in college (24 percent compared to 19 percent). ('Honors' is self reported and may include any type of recognition.)
- Public K-12 teachers have similar or higher grades than non-teachers in their respective major fields of study. Public school teachers were more likely to have grade point averages in the upper third than graduates who did not go into teaching (42 percent compared to 32 percent).

Table 4.—Percentage of Teachers According to Type of School, by Selected Characteristics: 1993-97

	Public K-12	Private	Pre-kindergarten	Some teaching indication	Did not teach
Age					
Less than 22	19%	36%	28%	28%	26%
22-25	53	51	60	46	49
26 or more	29	14	11	26	25
Minority	15	8	15	13	17
Female	73	77	83	66	52
Top SAT/ACT quartile	15	24	22	23	25
Remedial class	8	9	9	6	6
Received honors	24	22	24	25	19
GPA rank					
Top third	42	39	37	41	32
Middle third	36	37	37	37	32
Low third	22	23	26	22	36

NOTE: Detail may not sum to 100% due to rounding. SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

This last finding suggests that education majors may receive higher grades than non-majors. But not all teachers are education majors, and not all education majors teach. Table 4(a) reports the data for GPA rank by field of study for those who taught and those who did not teach. It shows that public K-12 teachers have similar or higher grades than non-teachers in their respective major fields of study. Public school teachers with majors in education and 'Other' fields were more likely to have grades in the top third and less likely to have grades in the lowest third than those who did not teach. Liberal arts majors who taught were less likely to have grades in the lowest third than non-teachers.

Table 4a.—Percentage Distribution of Public K-12 Teachers and Non-Teachers According to GPA Rank, by Major Field of Study: 1993-97

	Low GPA rank	Middle GPA rank	High GPA rank
		Public K-12 teachers	
Major field of study			
SMET	29%	32%	39%
Liberal arts	25	42	33
Education	19	37	45
Other	22	27	51
		Non-teachers	
Major field of study			
SMET	35	34	31
Liberal arts	35	30	34
Education	27	37	37
Other	37	32	30

NOTE: Detail may not sum to 100% due to rounding. SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

In summary, these measures of educational merit provide a mixed picture. On one hand, public school teachers report similar or higher grades in their respective fields of study (not just education), and academic honors that are not statistically different than their classmates who did not go into teaching. On the other hand, they have lower entrance test scores overall.

But these apparently contradictory findings are explained by the fact that education majors have lower entrance test scores (average SAT score = 946) than those in other major fields of study combined (average SAT score = 1060), and that teachers are more likely to be education majors (48 percent) than are non-teachers (2 percent)[1]. Furthermore, we must be alert to the different characteristics of teachers at different grade levels, and we address this issue in more detail in a later section. Furthermore, this analysis does not capture other attributes of good teaching, such as motivation, perseverance, patience and capacity to inspire children.

Differences Between Public and Private School Teachers

The most striking differences between public and private school teachers are that private school teachers were more likely to be in the top test quartile than were public school teachers (24 percent compared with 15 percent), they were more likely to be under 22 years old when they

[1] Data not in table

started teaching (36 percent compared with 19 percent), and they were almost one-half as likely to be from a minority ethnic or racial group (8 percent compared with 15 percent). Furthermore, private school teachers were less likely than public school teachers to transfer units from a community college (tables 1-4).

WHERE PUBLIC SCHOOL TEACHERS WORK

Concern exists nationally about whether teacher quality varies by types of school environments. In this section we use three school characteristics as a framework for comparing the characteristics of beginning public school teachers' schools. These are grade level, school location and the degree of poverty among the school's students.

The grades at which teachers are teaching are divided into three groups: Kindergarten through fifth grade, grade six through eight and grade nine through 12. The second set of school characteristics is city, suburban or non-urban location.[iv] Finally, schools where the teachers were located were divided into three groups based on the percent of students in the free-lunch program, which is a measure of poverty in the school.

The following tables identify beginning teacher characteristics associated with teaching in different settings. The premise to be evaluated is whether teachers with stronger educational merit are more likely to teach in low-poverty schools and in suburban areas instead of high-poverty schools. The tables also show the relationship between school characteristics and teacher satisfaction.

Grade Level Taught

Table 5 provides information about beginning public school teachers at each of the three grade-level groups. We find that elementary school teachers differ in several important ways from those teaching in middle-grades and high schools.

- High school teachers were more likely to have tested in the upper quartile of the SAT/ACT than those who taught in elementary schools (24 percent compared with 8 percent) (table 5). Indeed, the proportion of beginning high school teachers who had scored in the top quartile was about the same as the 25 percent of those graduates not teaching. High school and middle-grade teachers were also more likely to have an academic major than were teachers in elementary schools.

- In contrast, none of the GPA measures shows statistically significant differences by grade level taught, even though grade point average is presented three ways in the table. The first measure is for overall GPA, the second is for teachers who did not major in education and the third one is for those with an education major. Teachers at all grade levels were more likely to have GPAs in the upper third than were non-teaching graduates - for both education and non-education majors.

- Not unexpectedly, most elementary school teachers majored in education, with hardly anyone in SMET fields. The distribution of academic majors was much more diverse for

high school teachers, with just over one-third majoring in education. This is, of course, related to differing requirements for certification at different grade levels. Almost half (48 percent) of beginning teachers in the middle grades (grades 6-8) had non-education undergraduate majors.

- It appears that high school teachers were more likely to have attended a selective institution than elementary school teachers, although the difference just misses the 95% level of statistical significance. High school teachers were less likely to have transferred units from a community college than either elementary or middle-grade teachers.
- Finally, high school teachers were more likely to be men than were elementary school teachers. Forty-four percent of beginning high school teachers were men, compared with 10 percent of the elementary school teachers.

The conclusion is that considerable variation exists among teachers at different grade levels. This demonstrates how misleading it is to describe the "average" school teacher. High school teachers are more similar to non-teachers than they are to elementary grade teachers. Middle-grade teachers fall between the other two groups of teachers on these measures. These differences reflect teaching requirements at different levels.

Table 5.—Percentage of Public School Teachers by Characteristics and Grade Level: 1993-97

	Grade level		
	K-5	**6-8**	**9-12**
Age			
Less than 22	16	17	17
22-25	55	55	57
26 or more	29	27	26
Minority	16	15	14
Female	90	62	56
Attended selective institution	24	28	30
Community college credits	46	46	32
Top SAT/ACT test quartile	8	15	24
Remedial class	8	5	6
Received honors	28	28	21
Ranked top third-GPA	45	49	42
Ranked top third-GPA, non-ed	43	47	43
Ranked top third-GPA, ed major	46	49	40
Major field of study			
SMET	1	15	19
Liberal arts	16	25	21
Education	73	52	34
Other	9	8	26

NOTE: Detail may not sum to 100% due to rounding. SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

City, Suburban or Non-Urban School Location

The mix of new teachers differs by whether the school is in a city, suburb, or non-urban setting (table 6). About one third of beginning teachers taught in each setting (31 percent city, 37 percent suburban and 32 percent non-urban.) Almost half (43 percent) of beginning middle-grade teachers were teaching in non-urban areas.

The working premise was that suburban schools were more likely to attract well-qualified teachers than non-urban or city schools. This did not prove to be the case. Statistically significant differences with regard to educational merit and background characteristics include:

- A larger share of city teachers attended a selective institution than those in non-urban schools (35 percent compared with 22 percent).
- Teachers in suburban schools were more likely to have a non-education major than those teaching in city or non-urban schools.
- Non-urban schools were less likely to have female teachers than were city schools (67 percent compared with 83 percent).
- Non-urban teachers appear to be slightly older than those entering city or suburban schools, but the differences are not statistically significant.

The remaining differences among city, suburban and non-urban teachers were not statistically significant.

Table 6.—Percentage of Public School Teachers According to Locale of School, by Characteristics: 1993-97

	Locale		
	City	Suburban	Non-Urban
Age			
Less than 22	21%	22%	16%
22-25	55	51	54
26 or more	24	27	30
Minority	22	13	6
Female	83	73	67
Attended selective institution	35	26	22
Community college credits	37	40	43
Top SAT/ACT test quartile	16	15	9
Remedial courses	6	7	8
Received honors	23	25	25
Ranked top third-GPA	38	44	47
Major field of study			
SMET	9	12	9
Liberal arts	24	27	18
Education	51	43	55
Other	17	18	18
Grade level taught			
K-5	54	50	40
6-8	21	22	31
9-12	24	28	29

NOTE: Deatil may not sum to 100% due to rounding. SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

TEACHER SATISFACTION

The Baccalaureate and Beyond survey queried teachers about their satisfaction with their teaching experience. City teachers were less likely than were suburban teachers to say that they were very satisfied in almost every category (table 7). (The class size difference was not statistically significant.) The 15 percent of non-urban teachers who were very satisfied with society's esteem for the teaching profession was greater than teachers in city or suburban schools. In all cases, two working conditions measures - satisfaction with school environment and class size - elicited the highest positive satisfaction measures. But it is evident that teachers, regardless of where they teach, do not feel as if the larger society values their efforts, given the low satisfaction scores they report on this measure.

Table 7.—Percentage of Public School Teachers Who Were Very Satisfied With Aspects of Their Job According to Locale of School, by Teaching Environment Characteristics: 1993-97

	Locale			
	City	Suburban	Non-Urban	Total
Percent very satisfied with				
School environment	38%	47%	45%	44%
Class size	38	41	50	43
Discipline	26	29	32	29
Parent support	23	31	27	27
Student learning	17	28	23	23
Esteem of society for the teaching profession	9	11	15	12

SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

TEACHER SALARIES

Teachers reported their beginning annual salary from teaching. Other income they may have earned is not included. Based on their reported salary, each teacher was assigned to an income quartile calculated on the salaries paid to all teachers in the study. Table 8 shows that 40 percent of the non-urban teachers entered teaching in the lowest salary quartile. They were more than twice as likely to be in the lowest income group than city or suburban teachers. Suburban teachers were most likely to have a starting salary in the highest income category, even though their only distinguishing characteristic was a higher proportion with non-education majors.

Table 8.—Percentage Distribution of Public School Teachers According to Locale of School, by Beginning Annual Salary: 1993-97

	Locale			
	City	Suburban	Non-Urban	Total
Beginning annual salary				
Less than $22,000	17	16	40	25
$22,000-$24,999	26	18	30	24
$25,000-$27,999	29	25	20	24
$28,000 or more	28	41	10	27

SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

To recapitulate other differences between groups of teachers, those who had attended a selective institution were more likely to teach in city schools than they were to teach in non-urban schools. City school teachers were less satisfied with aspects of their job than were suburban teachers. Males were more likely to teach in non-urban schools than they were to teach in city schools. Finally, teachers in non-urban schools were happier with society's esteem for the teaching profession than were those in city schools.

School Poverty Level

Another way of looking at the school environment in relation to teacher characteristics is the degree of poverty among schools' students. We divided schools into three groups, depending on the proportion of students participating in the federal free-lunch program. Over one-half, 59 percent, of the public school teachers taught in a school with 30 percent or less students in the free lunch program, 32 percent taught in schools with 31-70 percent and the final 9 percent taught in schools with 71 percent or more students in the free lunch program (table 9).

Poverty is not evenly distributed among school locales. Almost one in five teachers in city schools was in a high-poverty school, compared with 12 percent of those teaching in suburban schools, and just 3 percent of those teaching in non-urban schools. In contrast, two out of three teachers in suburban schools were in low-poverty schools, compared with about half of those in city or non-urban schools. Finally, teachers taking jobs in non-urban schools were the most likely to teach in schools in the middle range of the poverty measure.

Table 9.—Percentage Distribution of Public School Teachers Employed in Schools According to Percentage of Students Participating in Free Lunch Program, by Locale and Grade Level Taught: 1993-97

	Percent of students participating in free lunch program			
	30% or less	31%-70%	71% or more	Total
Total*	59%	32%	9%	100%
Locale				
Average	57	32	11	100
City	49	31	19	100
Suburban	67	21	12	100
Non-Urban	52	45	3	100
Grade level taught				
Average	52	36	12	100
K-5	38	43	18	100
6-8	62	29	8	100
9-12	69	29	2	100

*The total average differs from the detail because these averages are based on slightly different groups. For example, locale information is not available for all respondents, nor is grade level taught. Further, neither grade level data nor locale information may be available for some respondents

Note: Detail may not sum to 100% due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

Poverty and level of the school is also related. Teachers in elementary schools were more likely to teach in a high-poverty school than middle-grade or high school teachers. This probably reflects the fact that elementary schools are tied to smaller geographic communities than middle-grade and high schools. Concentrations of poverty will be diluted in the larger enrollment areas

represented by middle-grade and high schools. Also, parents probably earn less when their children are younger, which would also cause poverty rates to be higher for elementary schools.

TEACHER CHARACTERISTICS

Table 10 displays teacher characteristics by school poverty level. The proportion of teachers with SAT/ACT scores in the top quartile was similar at each level. Even though teachers in high-poverty schools appear to be more likely to have taken a remedial class in college, to have lower GPAs, and not to have attended a selective institution, the differences are not statistically significant. Indeed, none of the remaining educational background differences met the standards of statistical significance. This is a result of relatively few cases in some of the cells. The conservative conclusion is that teachers have similar educational background characteristics independent of the poverty level of the school in which they teach.

Table 10.—Percentage of Public School Teachers Possessing the Selected Characteristic, According to Percentage of Students Participating in Free Lunch Program: 1993-97

	Percent of students participating in free lunch program		
	30% or less	31%-70%	71% or more
Age			
Less than 22	18%	18%	17%
22-25	59	49	42
26 or more	23	33	41
Minority	13	12	41
Female	69	77	88
Attended selective institution	30	25	18
Community college credits	39	48	29
Top SAT/ACT test quartile	14	15	14
Took remedial class	6	8	16
Received honors	21	28	29
Ranked top third GPA	43	47	37
Major field of study			
SMET	14	8	9
Liberal arts	23	19	34
Education	44	54	40
Other	20	20	17
Grade level taught			
K-5	36	60	78
6-8	30	20	18
9-12	33	20	3

NOTE: Detail may not sum to 100% due to rounding. SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

Teachers in high-poverty schools were less likely to have majored in a SMET field than those teaching in low-poverty schools. This is not surprising since teachers in high-poverty schools were twice as likely to be elementary teachers. What is interesting is that not more of them were

education majors. In fact, teachers in high-poverty schools were more likely to have majored in liberal arts than were those in the middle poverty category, but not low-poverty schools.

Teachers in high-poverty schools were more likely to be 26 years old or more when they started teaching than were those in low-poverty schools. Finally, teachers in high-poverty schools were also more likely to be minority and more likely to be female than were those teaching in low-poverty schools.

TEACHER SATISFACTION

Teachers in high-poverty schools were less satisfied than were those in low-poverty schools with school environment (table 11). The rest of the differences between teachers in high and low-poverty schools were not statistically significant.

Table 11.—Percentage of Public School Teachers Stating They Were Very Satisfied With Selected Characteristics of Teaching, According to Percentage of Students Participating in Free Lunch Program: 1993-97

	Percent of students participating in free lunch program			
	30% or less	31%-70%	71% or more	Total
Percentage very satisfied with:				
School environment	46%	38%	39%	42%
Class size	42	40	33	43
Discipline	29	28	27	28
Parent support	31	18	22	40
Student learning	21	22	38	26
Esteem of society for the teaching profession	11	12	9	11

SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

TEACHER SALARIES

While the data in table 12 suggest that the percent of teachers in high-poverty schools who earned $28,000 or more was greater than the share in the two lower poverty school groups, the differences are not statistically significant. This is a result of relatively few cases in some of the cells. The conservative conclusion is that no difference exists in the average salary of teachers in the three types of schools.

Table 12.—Percentage Distribution of Public School Teachers According to Percentage of Students Participating in Free Lunch Program, by Beginning Annual Salary: 1993-97

	Percent of students participating in free lunch program			
	30% or less	31%-70%	71% or more	Total
Total	100%	100%	100%	100%
Beginning annual salary				
Less than $22,000	28	26	24	24
$22,000-$25,999	28	23	16	25
$26,000-$27,999	22	28	25	24
$28,000 or more	22	23	35	24

Note: Detail may not sum to 100% due to rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

In summary, there is no average teacher. Generalizing about teachers as an undifferentiated group will not improve understanding. Some of the differences are expected and others are unexpected. It is not surprising that elementary school teachers were more likely to have majored in education than were high school teachers. Perhaps it is not so predictable that males are more likely to teach in non-urban schools than city schools. The profession of teaching encompasses a variety of emphases that are as different as distinctions among lawyers and physicians.

PARTICIPATION IN AN INDUCTION PROGRAM

Participation in an induction/mentoring program is an important component of professional development for new teachers. We use the Baccalaureate and Beyond data to examine whether teachers in different teaching environments systematically experience different levels of participation in an induction program.

High school teachers appear to be less likely to have participated in an induction program, but the differences are not statistically significant (table 13). The degree of student poverty in the school does not seem to be closely related to participation in an induction program. The only statistically significant school characteristic related to participating in an induction program is teaching in a non-urban school. Fifty-eight percent of the teachers in non-urban schools participated in an induction program, which was higher than for teachers in city or suburban schools.

Table 13.—Percentage of Public School Teachers Who Participated in Induction Programs, by Selected Characteristics: 1993-1997

	Percent participating
Level of school	
K-5	48%
6-8	50
9-12	43
Locale	
City	44
Suburban	45
Non-Urban	58
Percent of students receiving free lunch	
30% or less	50
31%-70%	53
71% or more	53

SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

WHO LEAVES TEACHING?

If a teacher leaves soon after being hired, the school district has lost time and money in the hiring process, the teacher was probably unhappy with his or her choice, and the students will have been subjected to the teacher's least productive years as they craft their teaching skills and learn how to manage a class. In short, everyone loses. (In this study, a teacher is categorized as having left teaching if he or she left education totally or moved into a non-teaching position in

education.) The tables identify the characteristics that differentiate teachers who stay in the classroom from those who leave. Both background characteristics and school characteristics are examined, as is satisfaction with the job.

RETENTION BY TYPE OF SCHOOL AND CERTIFICATION

Public school teachers were less likely to leave within three years than teachers in other sectors (table 14). Overall, 16 percent of the beginning public school teachers in the study left teaching within three years. If public school teachers were certified, their attrition dropped to 12 percent, compared to 38 percent for those who were not certified.

Table 14.—Percentage of Teachers Who Left Teaching by 1997, by Type of School Taught in and Certification Status: 1993-97

	Percentage left
Type of school	
Pre-kindergarten	53%
Some teaching indicated	32
Private school teacher	31
Public school teacher	16
Not certified	38
Certified	12

SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

Public school teachers with college admission scores in the top quartile were more likely to leave teaching within three years (29 percent compared to 15 percent of those with scores in the other quartiles (table 15). The rest of the differences in Table 15 did not prove to be statistically significant.

Table 15.—Percentage Distribution of Public School Teachers Still Teaching/Left by Selected Characteristics: 1993-1997

	Still teaching	Left
Total	84%	16%
Attended selective institution	79	21
Did not attend selective institution	84	16
Community college credits	79	21
No community college credits	85	15
Top SAT/ACT test quartile	71	29
Not top SAT/ACT test quartile	82	15
Remedial classes	84	16
No remedial classes	82	18
Received honors	86	14
Did not receive honors	82	18
Ranked top third GPA	83	17
Ranked middle third GPA	86	14
Ranked bottom third GPA	75	25
Ranked top third GPA - not education major	78	22
Ranked top third GPA - education major	88	12

SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

RETENTION BY COLLEGE MAJOR

Education majors were most likely to stay on the job (89 percent) while those with 'Other' majors were the most likely to leave (28 percent) (table 16).

Table 16.—Percentage Distribution of Public School Teachers Still Teaching/Left by Major Field of Study: 1993-1997

	Still teaching	Left
Total	84%	16%
Major field of study		
Other	72	28
Liberal arts	78	22
SMET	81	19
Education	89	11

SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

RETENTION AND TEACHER SALARY

Salary was strongly related to staying in teaching. Table 17 shows that as beginning salary declines, the chances of leaving increase. Nearly one-quarter of the teachers in the lowest pay quartile left teaching while 5 percent of those in the highest salary quartile left.

Table 17.—Percentage Distribution of Public School Teachers Still Teaching/Left by Major Field of Study: 1993-1997

	Still teaching	Left
Total	84%	16%
Beginning annual salary		
Less $22,000	76	24
$22,000-$24,999	84	16
$25,000-$27,999	90	10
$28,000	95	5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

RETENTION AND SCHOOL CHARACTERISTICS

Table 18 shows the proportion of teachers leaving by grade level, geographic location and student poverty level of teachers' schools.

- While high school teachers appear to be more likely to leave than elementary school teachers, the differences by grade level were not statistically significant.
- Teachers in city schools were no more likely to leave than were teachers in suburban or non-urban schools.
- The percent of teachers leaving does not seem to be systematically related to the poverty level of the school. Teaching in a high-poverty school did not result in a greater probability of leaving.

Table 18.—Percentage Distribution of Public School Teachers Still Teaching/ Left, by School Characteristics: 1993-97

	Still teaching	Left
Total	84%	16%
Level of school		
K-5	88	12
6-8	83	17
9-12	80	20
Locale		
City	81	19
Suburban	84	16
Non-urban	84	16
Percent of students participating in free lunch program		
30 or less	86	14
31-70	85	15
71 or more	87	13

SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

RETENTION AND TEACHER SATISFACTION

Not surprisingly, satisfaction was related with whether a teacher stayed or left. Teachers who were very satisfied in each category, with the exception of societal views, were more likely to stay on the job (table 19). The three measures of satisfaction that distinguished most between "stayers" and "leavers" were school environment and student learning and discipline.

Table 19.—Percentage of Public School Teachers Still Teaching by Satisfaction Measures: 1997

	Student learning	School environment	Class size	Parental support	Societal views	Discipline
Total*	86%	86%	86%	86%	86%	86%
Satisfaction level						
Dissatisfied	81	76	85	83	86	78
Somewhat satisfied	87	83	85	87	87	87
Very satisfied	92	93	88	89	85	93

*A subset of respondents answered the satisfaction questions, resulting in slightly different totals than were previously reported.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

PARTICIPATION IN AN INDUCTION PROGRAM

Our study confirms that participation in an induction program is strongly associated with staying in teaching (table 20). Teachers who did not participate in an induction program were nearly twice as likely to leave teaching compared with those who did participate in an induction program.

Table 20.—Percentage Distribution of Public School Teachers Still Teaching/Left by Induction Program Participation: 1993-97

	Still teaching	Left
Total	84%	16%
Induction program participation		
Participated	88	12
Did not participate	78	22

SOURCE: U.S. Department of Education, National Center for Education Statistics, Baccalaureate and Beyond: 1993-97 (BPS:97), Data Analysis System (DAS), Washington, DC: 2001.

SUMMARY AND CONCLUSIONS

Preparing teachers is an important part of the work of colleges and universities. Fifteen percent of college graduates become teachers within three years of graduating and there is no doubt that more follow later in their lives.

The results of this research suggest the importance of helping college students select an appropriate occupation early in their education. Many college seniors apparently do not have very precise plans about what they will do after college. Thirty percent of the college seniors who prepared to teach did not, while 38 percent of those who eventually went into teaching did not appear to prepare to be a teacher when they were in college. So colleges prepare some students to teach who do not, and may not provide basic professional preparation for other students who become teachers soon after leaving college. If colleges can provide beginning students with a realistic set of expectations and experiences regarding teaching, students can perhaps make more informed decisions about their interest in the profession of teaching. Community colleges can play an important role in this process because 40 percent of those who went into teaching took classes in a community college. The use of college work-study, internships and volunteer programs to place college students in local schools could help beginning college students develop a better understanding of what goes on in schools regardless of whether they plan to teach or not.

Measures of educational merit provide a complex picture of public school teachers. The often-heard criticism that teachers are not as well-prepared as other graduates was generally not supported. Teachers have similar or higher grades than non-teacher graduates in their major fields of study. While lower college admission test scores were reported for teachers overall, high-school teachers' scores were similar to non-teachers. Indeed, high school teachers are more similar to non-teachers on these measures than they are to elementary-grade teachers. Middle-grade teachers fall between the other two groups of teachers on these measures.

We know that continuing attention needs to be paid to retaining those teachers who do enter teaching. The results of this study support four key policies that states and local school districts can undertake to improve retention of teachers early in their career.

- Certified public school teachers remain in teaching at three times the rate of non-certified teachers. When conditions necessitate the hiring of new teachers who lack certificates, the

state should make every effort to prepare them to qualify for a teaching certificate as soon as possible.

- The presence of an induction program for new teachers is strongly related to teachers who stay. Overall, about one-half of the new teachers said that they had an induction program. This leaves a large opportunity to help new teachers make a transition to their new jobs.
- Satisfaction with the school environment was related to staying on the job. This is an ambiguous category because it could include the physical or social environment. But helping new teachers set realistic expectations and providing opportunities to suggest improvements could go a long way toward improving teacher satisfaction, and retention.
- The results provide compelling evidence for the importance of salary in retaining teachers. Beginning public school teachers with the lowest salaries were five times as likely to leave compared to those who earned at the top quartile of starting salaries. Apparently, the lower salaries are not competitive enough to retain new teachers. Almost all teachers (95%) who started with salaries in the top quartile for beginning teachers remained in the classroom, whether they taught in city, suburban or non-urban schools, or low, medium or high-poverty schools.

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[i] The B&B dataset is based on a sample of 11,192 students in their senior year of college. Because teachers represent a small share of those students, the resulting sample is relatively small 1,864 (1,166 teaching in the public, k-12 sector), which increases sampling error. This means that differences may be due to chance and not because a real difference exists between groups.

[ii] The Carnegie classification is a system for classifying institutions. The classifications until 2001 were as follows:

Research Universities I -These institutions offer a full range of baccalaureate programs, are committed to graduate education through the doctorate, and give high priority to research. They award 50 or more doctoral degrees each year. In addition, they receive $40 million or more annually in federal support.

Research Universities II - These institutions offer a full range of baccalaureate programs, are committed to graduate education through the doctorate, and give high priority to research. They award 50 or more doctoral degrees each year and receive $15.5 to $40 million in federal support annually.

Doctoral Universities I - These institutions offer a full range of baccalaureate programs and are committed to graduate education through the doctorate. They award at least 40 doctoral degrees in 5 or more disciplines annually.

Doctoral Universities II - These institutions offer a full range of baccalaureate programs and are committed to graduate education through the doctorate. They award at least 10 doctoral degrees in 3 or more disciplines annually, or 20 or more doctoral degrees in one or more disciplines.

Comprehensive I - These institutions offer a full range of baccalaureate programs and are committed to graduate education through the master's degree. They award 40 or more master's degrees annually in three or more disciplines.

Comprehensive II - These institutions offer a full range of baccalaureate programs and are committed to graduate education through the master's degree. They award 20 or more master's degrees annually in one or more disciplines.

Liberal Arts Colleges I - These institutions are primarily undergraduate schools with major emphasis on baccalaureate degree programs. They award 40 percent or more of their baccalaureate degrees in liberal arts fields and are restrictive in admissions.

Liberal Arts Colleges II - These institutions are primarily undergraduate schools with major emphasis on baccalaureate degree programs. They award less than 40 percent of their baccalaureate degrees in liberal arts fields or are less restrictive in admissions.

[iii] The respondents' ages are reported as their age on 12/31/1992. This date is during their last academic year of their undergraduate work.

[iv] The National Center for Education Statistics (NCES) Common Core of Data was used to classify schools as follows:

- City includes large and mid-sized central cities of a Consolidated Metropolitan Statistical Area (CMSA) or MSA.
- Suburban includes urban fringes of large and mid-sized cities within a CMSA or MSA and defined as urban by the Census Bureau.
- Non-Urban includes a large town or small town located outside a CMSA or MSA, or any incorporated place, Census Designated Place, or non-place territory designated as rural by the Census Bureau.

Illinois Education Research Council
Box 1064, Southern Illinois University Edwardsville
Edwardsville, Illinois 62026-1064
618.650.2840