

Kindergarten Teachers

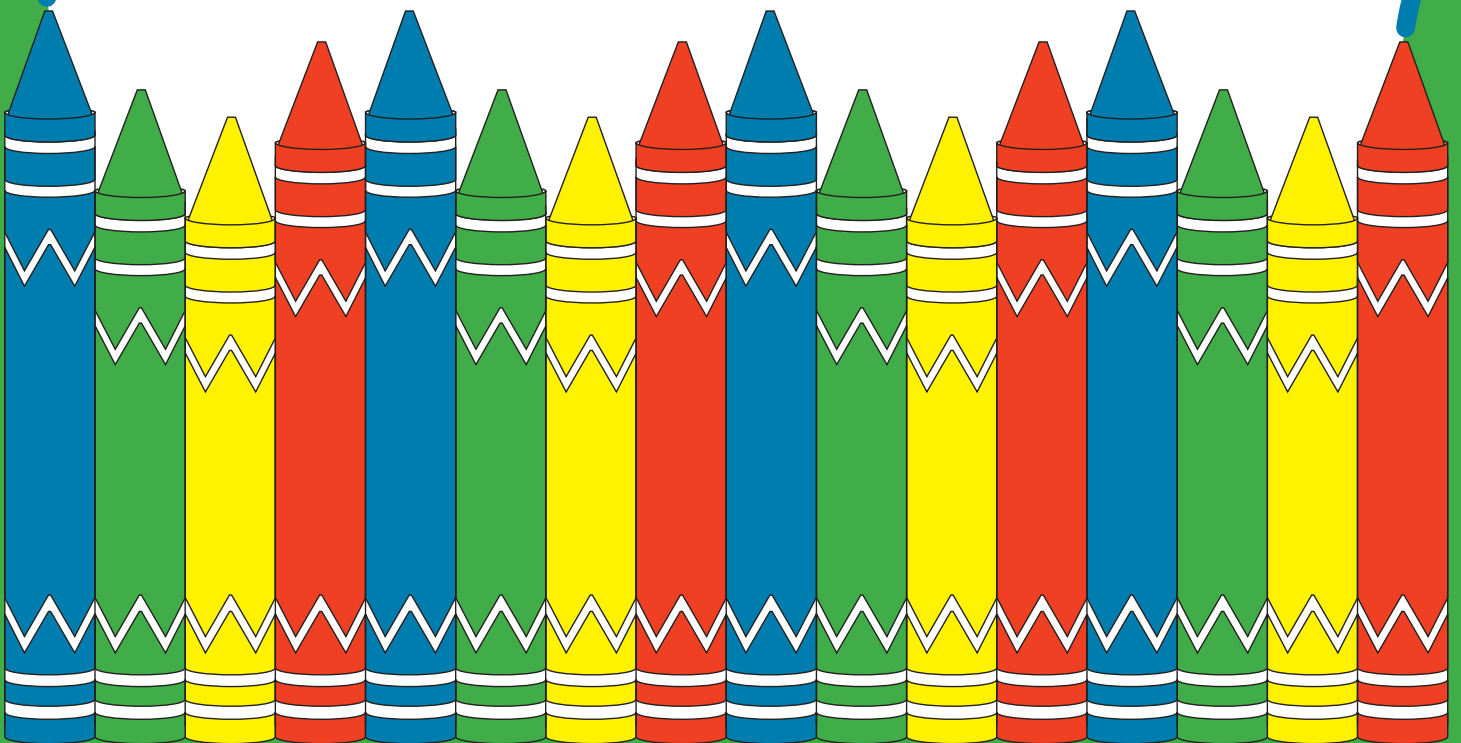
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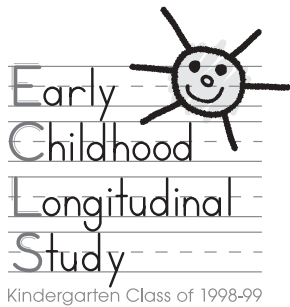
School Teachers of the

Kindergarten Class

of 1998-99

U.S. Department of Education
Institute of Education Sciences
NCES 2004-060





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March 2004

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Executive Summary

Kindergarten is an important transition year for young children. Kindergarten classroom activities typically cover many of the language arts and mathematics concepts and skills that provide important foundations for learning throughout the elementary school years. Kindergarten teachers play an important role in children's kindergarten experiences. The importance of quality teachers in students' educational experiences has been highlighted with the passage of the *No Child Left Behind Act* (NCLB, P.L. 107-110). The Act requires that schools have a highly qualified teacher in every classroom by the 2005–06 school year.

This report examines aspects of the kindergarten experience through a national profile of teachers of the kindergarten class of 1998–99 in the United States. It presents data collected from questionnaires completed by 3,102 kindergarten teachers participating in the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K). It describes the demographic characteristics and professional qualifications of kindergarten teachers in both public and private school kindergartens. Moreover, the report examines data on the schools and classrooms where they teach. The study's sample of kindergarten teachers represents all of the nation's kindergarten teachers from public and private schools that have kindergarten programs. All differences cited in this report are significant at the 0.05 level.

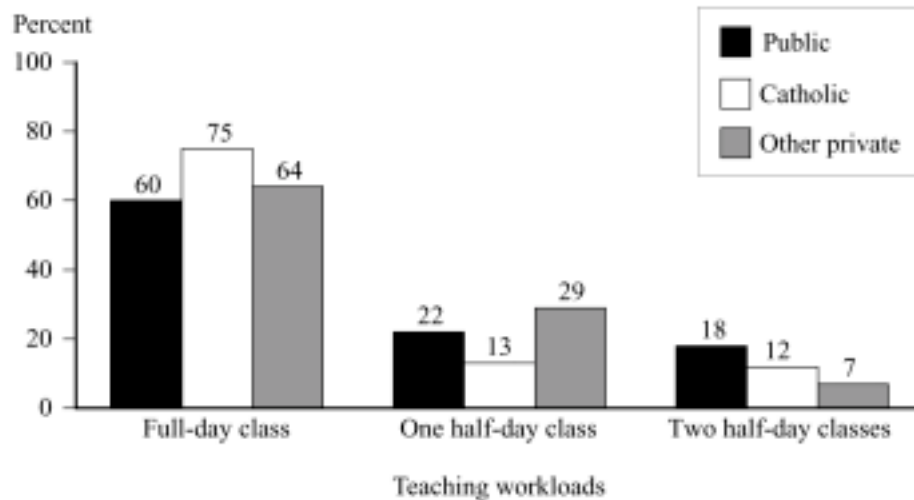
School Sector and Teaching Workload

In the fall of 1998, over 190,000 teachers were teaching in public and private school kindergarten programs. Approximately 80 percent worked in public¹ schools and about 20 percent worked in private schools, with 5 percent teaching in Catholic schools and 15 percent teaching in a diverse group of private schools such as those affiliated with non-Catholic religious organizations and non-religious school associations, and those not affiliated with any association. Overall, about 61 percent of all kindergarten teachers taught a full-day class, 22 percent reported they taught one half-day kindergarten class, and 16 percent reported they taught two half-day kindergarten classes. Figure A shows the same data disaggregated by school sector. A higher proportion of kindergarten teachers in Catholic schools taught a full-day

¹ The public schools in this report include regular public schools, special purpose schools such as magnet schools and special education schools, charter schools, Bureau of Indian Affairs or tribal schools, and schools that enroll preschoolers, kindergartners, and early elementary grade students.

kindergarten class (75 percent) compared with the proportion of their peers in public schools (60 percent) (figure A).

Figure A. Percent of kindergarten teachers with different teaching workloads, by school sector: Fall 1998



SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

Demographics

The demographic profile of kindergarten teachers in the fall of 1998 was very similar to that of all elementary school teachers in the 1999–2000 school year (U.S. Department of Education forthcoming). The majority of kindergarten teachers in the fall of 1998 were female (98 percent) and White, non-Hispanic (84 percent), and had completed at least a bachelor’s degree (98 percent). Their average age was 41.

Kindergarten teachers were more likely to teach in classrooms with high concentrations of children of the same racial/ethnic backgrounds as themselves (table A). Fifty-five percent of White teachers were working in classrooms where 75 percent or more of the children were also

White. Sixty percent of Black teachers taught in classrooms where 75 percent or higher of the enrolled children were Black and 61 percent of Hispanic teachers taught in classrooms where 75 percent or more of the children were Hispanic.²

Many kindergarten teachers of racial/ethnic minority backgrounds worked in classrooms with high concentrations of minority children. Seventy-three percent of Black, non-Hispanic teachers, 76 percent of Hispanic teachers, and 62 percent of teachers of other minority races reported teaching in classrooms with enrollments of 75 percent or higher minority children compared with 15 percent of White, non-Hispanic kindergarten teachers. Moreover, racial/ethnic minority teachers were more likely to have taught in classrooms with high concentrations of children of the same racial/ethnic backgrounds as themselves than were teachers of majority racial/ethnic backgrounds (table A).

Table A. Percent of kindergarten teachers in classrooms with 75 percent or higher concentrations of a racial/ethnic group enrolled, by teacher race/ethnicity: Fall 1998

Racial/ethnic classroom enrollment	Teacher race/ethnicity			
	White, non-Hispanic	Black, non-Hispanic	Hispanic	Other, non-Hispanic
75 percent or higher White children in classroom	55	5	6	6
75 percent or higher Black children in classroom	4	60	4	4
75 percent or higher Hispanic children in classroom	3	3	61	5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

² “White” and “Black” are used interchangeably with “White, non-Hispanic” and “Black, non-Hispanic,” respectively, throughout this report.

The racial/ethnic distribution of public school kindergarten teachers differed by the level of poverty of the school. Higher poverty schools, in which 50 percent or more of the students were eligible for free or reduced-price lunch, were compared with lower poverty schools, schools in which 0 through 49 percent of the students were eligible for subsidized meals.³ A smaller percentage of public school kindergarten teachers in higher poverty schools were White (79 percent) compared with those in lower poverty schools (91 percent). A larger percentage of public school kindergarten teachers in higher poverty schools were Black (9 percent) and Hispanic (9 percent) compared with teachers in lower poverty schools (3 and 4 percent, respectively).

Education

In the fall of 1998, almost all (98 percent) of the nation’s kindergarten teachers had at least a bachelor’s degree and many had earned advanced degrees. Two percent of kindergarten teachers reported not having a bachelor’s degree (table B). The highest concentration of kindergarten teachers without a bachelor’s degree taught in non-Catholic private schools (13 percent). More public school kindergarten teachers reported having earned a master’s degree as their highest degree (32 percent), compared with Catholic school kindergarten teachers (18 percent) and other private school kindergarten teachers (19 percent).

Table B. Percentage distribution of kindergarten teachers according to highest degree earned, by school sector: Fall 1998

School characteristic	Less than a bachelor’s degree	Bachelor’s degree	Master’s degree	Education specialist/ doctoral degree
All kindergarten teachers	2	63	29	6
School sector				
Public school	#	62	32	7
Catholic school	3	77	18	2
Other private school	13	64	19	4

Rounds to zero.

NOTE: Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

³ The school poverty analysis was restricted to public schools.

Certification

In fall 1998, most kindergarten teachers (84 percent) were fully certified, as opposed to holding a temporary, probationary, provisional, or other alternative type of certificate (12 percent).⁴ Three percent reported having no certificate. However, the proportion of kindergarten teachers who were fully certified varied by the following school and teacher characteristics:

- A smaller percentage of kindergarten teachers in classrooms with 75 percent or higher minority children were fully certified (77 percent) compared with teachers in classrooms with less than 50 percent minority enrollments (86 to 87 percent).
- A smaller percentage of kindergarten teachers in large city schools were fully certified (75 percent) compared with teachers in schools in other locations (86 to 88 percent).
- Eighty-nine percent of public school kindergarten teachers were fully certified compared with 71 percent of Catholic school kindergarten teachers and 63 percent of other private school kindergarten teachers. This reflects the fact that not all private schools require teachers to have a teaching certificate.

A goal of teacher preparation programs is to enable future kindergarten teachers to earn teaching certificates in either elementary education or early childhood education, or both, as well as a postsecondary degree. Almost all kindergarten teachers (95 percent) held a teaching certificate in either early childhood education or elementary education or both regardless of level of certification.

Experience

On average, the typical kindergarten teacher in fall 1998 had been teaching kindergarten for about 8 years. Kindergarten teachers in public schools had, on average, more years of experience teaching kindergarten (8.5 years) than did teachers in non-Catholic private schools (6.0 years). More teachers in non-Catholic private schools had less than 3 years of experience teaching kindergarten (43 percent), compared with the teachers in public schools (28 percent).

⁴In this report, teachers with regular or standard state certificates and those with advanced professional certificates were grouped together as “fully certified” because the sample size for those with advanced professional certificates was too small to be analyzed as a separate group. In the group of those with other types of certification, 2 percent had completed an alternative certification program (too small a group for analyses). The new Elementary and Secondary Education Act (ESEA) initiatives in the area of alternative certification were authorized into law after these data were collected.

Similar to what has been found in other studies of elementary school teachers (e.g., Henke et al. 2000), the average number of years teaching kindergarten was less for teachers in classrooms with the highest concentration of minority children (75 percent or higher) than for those in classrooms with lower concentrations of minority children (less than 50 percent). Teachers in classrooms with 75 percent or higher minority enrollment had an average of 6.8 years of experience teaching kindergarten, fewer years of experience than those teaching in classrooms with less than 10 percent minority classroom enrollment (9.0 years), or between 10 and 24 percent minority classroom enrollment (8.6 years), or between 25 and 49 percent minority classroom enrollment (8.7 years).

The kindergarten teaching experience of public school kindergarten teachers differed depending on whether they taught in higher poverty schools (schools where 50 percent or more of the school's total enrollment were eligible for free or reduced-priced lunch) or in lower poverty schools (schools where less than 50 percent of the students were eligible). Kindergarten teachers in higher poverty public schools were more likely to have less than 3 years of experience teaching kindergarten (31 percent) than were those in lower poverty public schools (24 percent). Twenty-two percent of teachers in higher poverty schools had 10 to 19 years of experience teaching kindergarten compared with 27 percent of teachers in lower poverty schools. While kindergarten teachers in higher poverty public schools had fewer average number of years of experience teaching kindergarten compared with those teaching in lower poverty public schools, no statistically significant differences were detected in the certification and education background of kindergarten teachers in higher and lower poverty schools.

Summary

This report provides a description of the demographic and professional characteristics of kindergarten teachers in the nation. Kindergarten teachers are not as demographically diverse as the children they teach. They are mostly female and White. Although most kindergarten teachers were fully certified in the fall of 1998 and had at least a bachelor's degree, some differences existed depending on school sector, school location, the poverty level of the student population, and the concentration of minority children in the classroom.

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Introduction

Kindergarten represents an important period in young children's school careers, setting children on a path that will influence their later learning and school achievement. It is a time when most children begin their elementary school education and experience the social and academic expectations associated with being a member of the school community (Graue 1992; Parsons 1994). For many children, kindergarten marks the beginning of a successful school career. For others, the transition to formal schooling is difficult.

Over the years, education policymakers have focused on teachers, administrators, and school structures as keys to higher educational achievement. Recent federal policy underscores the importance of ensuring that quality teachers are available to help students meet new academic standards. The passage of the *No Child Left Behind Act of 2001* (NCLB, P.L. 107-110) requires every classroom supported by Title I to have a highly qualified teacher by 2005–06. The Act defines a highly qualified teacher as one who not only possesses full certification but also has solid content knowledge of the subject(s) taught and passes subject knowledge and pedagogy tests.

While studies on teacher effects have been conducted at the elementary school level (e.g., Hawkins, Stancavage, and Dossey 1998; Laczko-Kerr and Berliner 2002; Sanders and Rivers 1996; Wright, Horn, and Sanders 1997), the literature on teacher qualifications and student achievement at the elementary school level is often based on middle and/or late elementary school grades. For example, Hawkins, Stancavage, and Dossey (1998) used data from the National Assessment of Educational Progress (NAEP) on fourth-grade students and their teachers. Sanders and Rivers (1996) and Wright, Horn, and Sanders (1997) studied third-, fourth-, and fifth-graders in Tennessee. Laczko-Kerr and Berliner (2002) excluded kindergarten and first-grade teachers from their study comparing certified and undercertified elementary school teachers in Arizona. National Center for Education Statistics (NCES) reports based on Schools and Staffing Survey data provide teacher qualification information at the national level, but kindergarten data are typically aggregated with other elementary grade levels (e.g., Seastrom et al. 2002, appendix B).

Information at the national level on kindergarten teachers is limited. A survey focused on kindergarten teachers was sponsored by NCES in 1993. However, the survey focused primarily on the views of public school kindergarten teachers on children's readiness for kindergarten (Heaviside and Farris 1993). The Early Childhood Longitudinal Study, Kindergarten Class of

1998-99 (ECLS-K) provides a unique opportunity to focus on the characteristics and qualifications of teachers at the kindergarten level.

This report describes the characteristics of kindergarten teachers and of the schools and classrooms in which they work. It presents data collected from questionnaires completed by 3,102 kindergarten teachers participating in the ECLS-K. The report specifically answers the following questions:

- What is the distribution of kindergarten teachers across the different school sectors and types of kindergarten programs?
- What are the overall age, sex, and race/ethnic distributions of kindergarten teachers across the different sectors and locations of schools?
- How does the racial/ethnic diversity of kindergarten teachers compare with the racial/ethnic composition of the children in their classrooms?
- What are the educational credentials of kindergarten teachers and do they vary by school and classroom characteristics?
- What is the kindergarten teaching experience of kindergarten teachers and does it vary by school and classroom characteristics?

This national profile of the demographic characteristics and professional credentials of kindergarten teachers contributes to the understanding of the variability of teachers among the different types of schools and classrooms that kindergartners attend.

Data Source

In the fall of 1998, the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), sponsored by the U. S. Department of Education, National Center for Education Statistics (NCES), began following a nationally representative sample of about 22,000 kindergartners. About 1,000 public and private schools offering kindergarten programs were selected to participate in the ECLS-K. The sample of schools included schools offering kindergarten and some combination of grades 1 to grade 12. Early childhood programs that offered kindergarten in addition to programs for preschoolers were also selected to participate. All the kindergarten teachers in the sampled schools were selected to participate.⁵ Data about the

⁵ The kindergarten teacher population included all kindergarten teachers in each of the ECLS-K sampled schools regardless of whether or not children in their classrooms participated in the study.

children, their families, and their teachers were collected in the fall of 1998 and again in the spring of 1999.

The findings presented in this report are based on the fall data collection of self-administered questionnaires completed by 3,102 kindergarten teachers in 880 public and private schools. The sample sizes and population counts of the kindergarten teachers described in this report are shown in table 1.

Table 1. Sample sizes, population counts, and percentage distribution of kindergarten teachers, by school and teacher characteristics: Fall 1998

School and teacher characteristics	Respondent	National estimates	
	sample	Number	Percent
All teachers	3,102	190,381	100
Race/ethnicity			
White, non-Hispanic	2,380	155,759	84
Black, non-Hispanic	199	11,894	6
Hispanic	282	12,078	6
Other, non-Hispanic	120	6,417	3
Age level			
Less than 30 years	550	33,368	18
30 to 39	712	43,800	24
40 to 49	950	61,743	34
50 to 59	628	38,561	21
60 years or older	83	5,174	3
Sex			
Female	2,934	183,230	98
Male	72	4,198	2
Teaching workload			
Full-day class	1,870	115,756	61
One half-day class	724	42,404	22
Two half-day classes	501	31,306	16
Percent minority classroom enrollment			
Less than 10 percent	652	48,605	29
10 to 24 percent	466	30,544	18
25 to 49 percent	456	27,612	16
50 to 74 percent	344	20,423	12
75 percent or more	872	42,170	25
School sector			
Public	2,733	151,728	80
Catholic	152	10,013	5
Other private	217	28,641	15
School location			
Large city	703	34,891	18
Midsized city	622	35,910	19
Suburbs/large town	1,217	75,968	40
Small town	272	17,958	9
Rural	288	25,654	14
Public school teachers, by poverty concentration of the school ¹			
Lower poverty (0-49 percent)	1,164	65,928	51
Higher poverty (50 percent or more)	1,062	62,154	49

¹The school's concentration of poverty was based on a composite of free and reduced-priced lunch and participation in a "school-wide" Title I program.

NOTE: Details may not add to totals because of rounding. "Other, non-Hispanic" includes teachers who indicated more than one non-Hispanic race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), "Teacher Questionnaires," fall 1998, Restricted-Use Data File.

Organization of Report

In the Findings section, this report describes the demographic characteristics and professional qualifications of kindergarten teachers according to various characteristics of the schools and classrooms in which they teach. The characteristics of the schools and kindergarten programs in which the teachers work are first described. This is followed by a description of the demographic characteristics of the teachers and the school and classroom environments where they work. The report includes information regarding the age, sex, and racial/ethnic background of the teachers, the school sector, and the racial/ethnic backgrounds of the children in their classrooms. Next, indicators of the teachers' professional qualifications are described. Particular attention is paid to how teachers with various teaching qualifications are distributed across a number of school and classroom characteristics, such as school sector, location, and the racial/ethnic composition of children in the kindergarten classroom. In addition, to provide more details of the characteristics of the teachers in public schools, teacher characteristics are examined by the concentration of lower income children attending the school. Findings from other national studies are cited to provide a comparison of the characteristics of kindergarten teachers with those of teachers in all the elementary grades.

Comparisons made in the report are tested for statistical significance at the .05 level adjusted for multiple comparisons (although not every significant difference is presented). Following the Findings, Summary, and Reference sections, a Methodology and Data Reliability section is included to provide details about the study design and other technical notes.

Findings

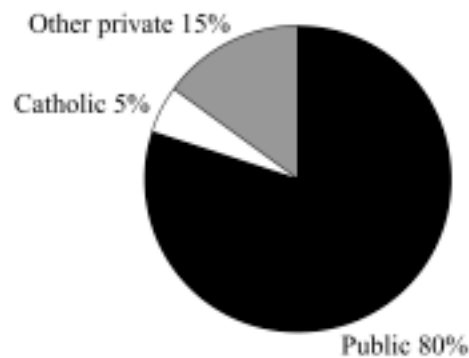
Kindergarten Teachers and Programs

School Sector

In the fall of 1998, there were more than 190,000 kindergarten teachers in kindergarten classrooms across the United States. About 80 percent of these teachers worked in public schools and 20 percent worked in private schools (figure 1). Approximately one-fourth of private school kindergarten teachers worked in Catholic schools (about 5 percent of all kindergarten teachers)

while about three-fourths worked in either nonsectarian or non-Catholic religious schools (15 percent of all kindergarten teachers).

Figure 1. Percent of kindergarten teachers, by school sector: Fall 1998



SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

In general, elementary schools that offer kindergarten have grade structures that cover five or six grades plus kindergarten and perhaps prekindergarten programs.⁶ The grades taught in these schools may be organized in a number of ways. For example, some elementary schools may only have two levels, prekindergarten and kindergarten, while others may have prekindergarten to third grade. Overall, 9 percent of kindergarten teachers worked in a school where kindergarten was the highest grade (prekindergarten/kindergarten), with 42 percent of non-Catholic private school kindergarten teachers in schools with this type of grade level organization (table 2). About 8 percent of all kindergarten teachers worked in a primary school where the highest grade was first, second, or third grade. Sixty-four percent work in an elementary school where the highest

⁶ Elementary schools are typically defined as those beginning with grade 6 or below and with no grade higher than 8. In 1998–99, about 18 percent of all public elementary schools were “middle” schools where the grade span begins with 4, 5, or 6 and ends with grade 6, 7, or 8 (U.S. Department of Education 2002).

grade was between fourth and sixth grade, and 18 percent work in a school where the highest level was seventh grade or above (combined school).

Table 2. Percentage distribution of kindergarten teachers working in schools by highest grade level, by school sector: Fall 1998

School grade level	School sector			
	All teachers	Public	Catholic	Other private
All teachers	100	80	5	15
Highest grade level of school				
Prekindergarten/kindergarten	9	4	2	42
Primary school (up to grade 1- 3)	8	8	1	4
Elementary school (up to grade 4- 6)	64	76	20	16
Combined school (up to grade 7-12)	18	11	77	38

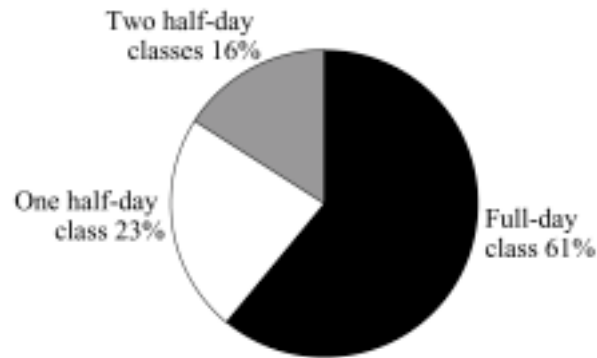
NOTE: Details may not add to totals because of rounding. Kindergarten was the highest grade in prekindergarten/kindergarten schools; the highest grade in primary schools was between first and third grade; the highest grade in elementary schools was between fourth and sixth grade; and the highest grade in combined schools was seventh grade or above.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

Teaching Workload: Full-day and Half-day Classes

Attendance in full-day kindergarten programs has increased over the years (Walston and West forthcoming). In the early 1970s, less than 20 percent of all kindergartners attended a full-day program (U.S. Department of Education 2002). By spring of 1999, 56 percent of all kindergarten children attended a full-day program (Walston and West, forthcoming). In fall 1998, 61 percent of all kindergarten teachers were teaching full-day classes, 23 percent were teaching one morning class or one afternoon class, and 16 percent taught both a morning and an afternoon class (figure 2).

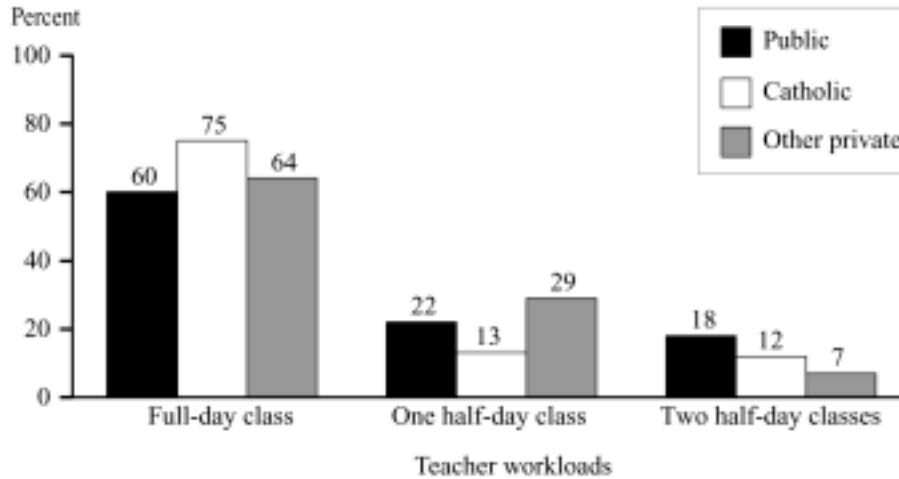
Figure 2. Percent of kindergarten teachers, by teaching workloads: Fall 1998



SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

About 60 percent of public school kindergarten teachers were in a full-day class. The percent distribution of kindergarten teachers’ workloads varied by school sector (figure 3). Catholic school kindergarten teachers were more likely to have taught a full-day kindergarten class (75 percent) than were public school kindergarten teachers (60 percent). In addition, teachers in Catholic schools were less likely to have taught one half-day class (13 percent) than other private school teachers (29 percent), and public school teachers were more likely to have taught two half-day classes (18 percent) than were other private school teachers (7 percent).

Figure 3. Percent of kindergarten teachers with different teaching workloads, by school sector: Fall 1998



NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

Teacher Demographics

Age

Teacher attrition due to retirements or a “graying” teaching force has contributed to the problems that schools face in staffing classrooms with qualified (Henke et al. 2000). The average age of kindergarten teachers in fall 1998 was about 41 years, and about 3 percent of kindergarten teachers were approaching retirement age (table 3). The average age was similar for kindergarten teachers in different school sectors. Not only was the average age of kindergarten teachers similar across school sectors, but the distribution of teachers by age was also similar.⁷ The average age for a kindergarten teacher in fall 1998 was 1 year younger than the overall average age of 42 for all public and private school teachers in 1999–2000 (U.S. Department of Education forthcoming).⁸

⁷ Some apparent differences were not statistically significant due to large standard errors.

⁸ U.S. Department of Education, National Center for Education Statistics, (forthcoming), Schools and Staffing Survey: 1999–2000 Electronic Codebook and Public-Use Data.

Table 3. Average age and percentage distribution of kindergarten teachers' age, by school sector and age groups: Fall 1998

School characteristic	Percentage distribution of age levels					
	Average age	Under 30	30-39	40-49	50-59	60 or over
All schools	41.3	18	24	34	21	3
School sector						
Public	41.1	19	24	33	21	3
Catholic	40.7	20	27	29	19	4
Other private	42.7	14	21	40	21	3

NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

Sex

Teaching at the elementary school level has traditionally been a female-dominated profession. Fifteen percent of public school teachers at the elementary school level were male in the 1999–2000 school year (U.S. Department of Education forthcoming).⁹ The paucity of male teachers was even more pronounced in kindergarten classrooms. In fall 1998, about 2 percent of kindergarten teachers were male (table 4).

Table 4. Percent of male and female kindergarten teachers, by school sector: Fall 1998

School characteristic	Female	Male
All schools	98	2
School sector		
Public	98	2
Catholic	100	0
Other private	97	3

NOTE: Details may not add to totals because of rounding.

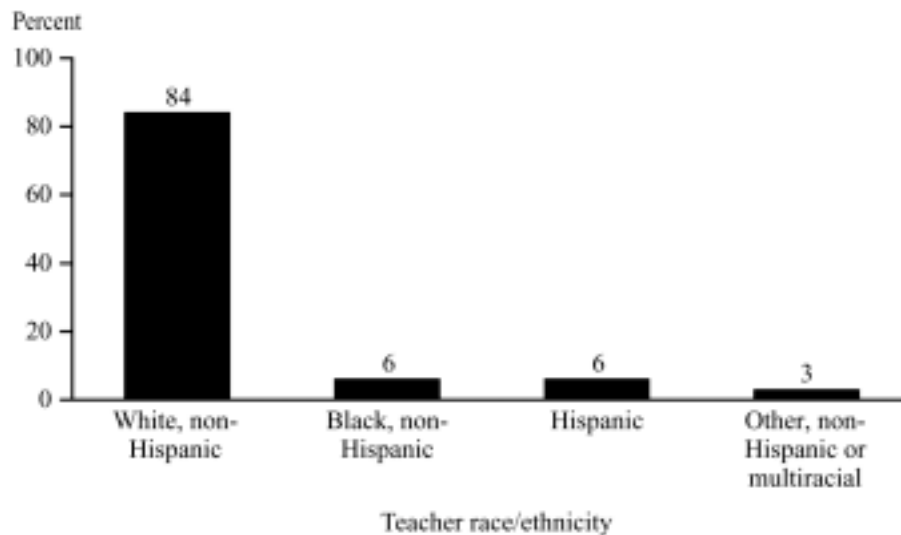
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

⁹ U.S. Department of Education, National Center for Education Statistics, (forthcoming), Schools and Staffing Survey: 1999–2000 Electronic Codebook and Public-Use Data.

Race/Ethnicity

Most of the nation's kindergarten teachers were White (84 percent), and a small percent were members of minority groups (6 percent Black, 6 percent Hispanic, and 3 percent other race/ethnicity or multiracial) (figure 4).¹⁰

Figure 4. Percentage distribution of kindergarten teachers, by race/ethnicity: Fall 1998



NOTE: Percents may not sum to 100 because of rounding.

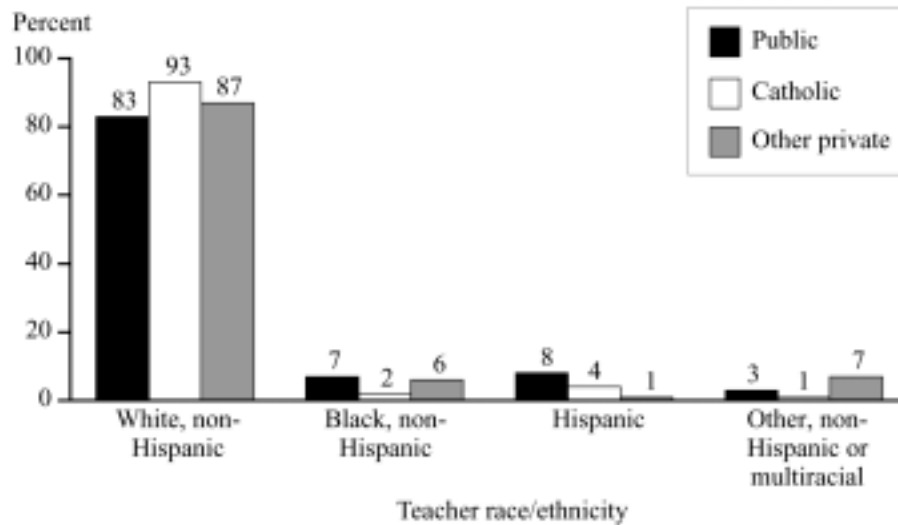
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

In the fall of 1998, the majority of kindergarten teachers in each school sector were White; however, a larger percent of Catholic school kindergarten teachers were White (93 percent) compared with teachers in public schools (83 percent) (figure 5). Fewer Catholic school kindergarten teachers were Black (2 percent) compared with Black teachers in public schools (7 percent). A smaller percent of teachers in other private schools were Hispanic (1 percent) compared with the percent of public school teachers who were Hispanic (8 percent). Furthermore, a larger percent of kindergarten teachers in other private schools were members of other non-

¹⁰ “Other” includes Asian, Hawaiian Native or other Pacific Islander, American Indian or Alaska Native, and more than one race, non-Hispanic. For more details, see the Methodology and Data Reliability section in this report.

Hispanic racial/ethnic groups (7 percent) compared with the percent of kindergarten teachers in Catholic schools (1 percent).

Figure 5. Percentage distribution of kindergarten teachers, by race/ethnicity and school sector: Fall 1998



NOTE: Percents may not sum to 100 because of rounding.

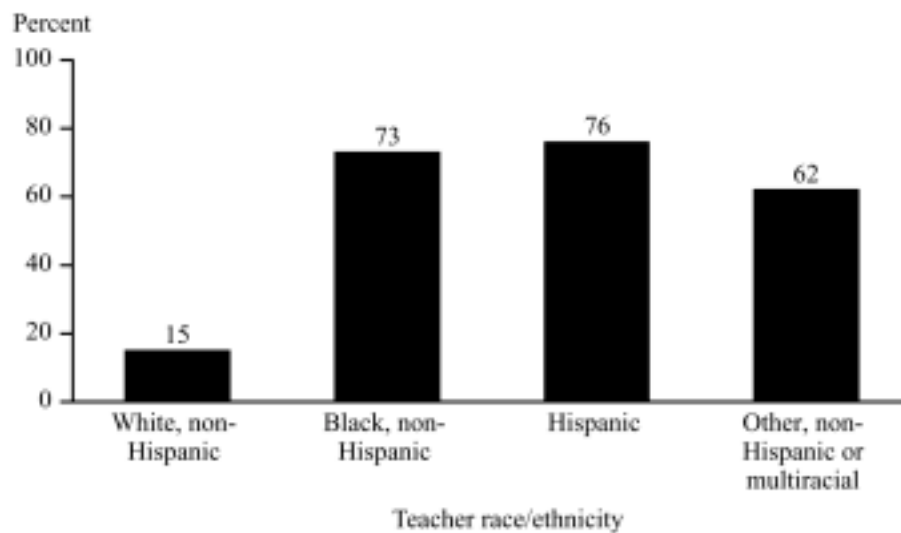
SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

Some research suggests that a racial match between teacher and pupil can enhance teachers’ understanding and acceptance of pupils (Ehrenberg, Goldhaber, and Brewer 1995) and children’s achievement (Dee 2001). In the fall of 1998, 42 percent of the nation’s first-time kindergartners were racial/ethnic minorities (West, Denton and Germino-Hausken 2000), whereas 16 percent of kindergarten teachers were racial/ethnic minorities.

In this study, kindergarten classrooms are classified by the concentration of racial/ethnic minority children. Note that although racial/ethnic groups other than White are referred to in this report as minorities, based on their relative size nationally, they in fact are the majority in some districts and schools. In a high racial/ethnic minority classroom, at least 75 percent of the children belong to a particular racial/ethnic group other than White, non-Hispanic (e.g., 75 percent of the

children in the classroom are Hispanic). Racial/ethnic minority teachers were more likely to be working in classrooms with high concentrations of minority children (figure 6). Seventy-three percent of Black teachers, 76 percent of Hispanic teachers, and 62 percent of teachers of other minority groups reported teaching in classrooms with high concentrations of minority children compared with 15 percent of White kindergarten teachers.

Figure 6. Percent of kindergarten teachers in classrooms with 75 percent or higher minority enrollment, by teacher race/ethnicity: Fall 1998



NOTE: For teachers who taught two half-day classes per day, the average percent minority enrollment for the two classes was calculated.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

Kindergarten teachers were also more likely to have taught in classrooms with high concentrations of children with racial/ethnic backgrounds like their own (table 5). Fifty-five percent of White teachers taught in classrooms where 75 percent or more of the children were also White, while only 5 to 6 percent of racial/ethnic minority teachers reported teaching in these classrooms. Sixty percent of Black teachers taught in classrooms where 75 percent or more of the children were Black compared with 4 percent each of White, Hispanic, and other minority teachers. Similarly, 61 percent of Hispanic teachers reported working in classrooms where 75

percent or more of the children were Hispanic, while only 3 to 5 percent of teachers of each of the other racial/ethnic backgrounds reported working in such classrooms.

Table 5. Percent of kindergarten teachers in classrooms with 75 percent or higher concentration of a racial/ethnic group enrolled, by teacher race/ethnicity: Fall 1998

Racial/ethnic classroom enrollment	Teacher race/ethnicity			
	White, non-Hispanic	Black, non-Hispanic	Hispanic	Other, non-Hispanic or multiracial
75 percent or higher White children in classroom	55	5	6	6
75 percent or higher Black children in classroom	4	60	4	4
75 percent or higher Hispanic children in classroom	3	3	61	5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use data file.

These findings show that the overall composition of kindergarten teachers was not as racially and ethnically diverse as that of kindergarten children. Racial/ethnic minority children comprised 42 percent of kindergartners in the United States (West, Denton and Germino-Hausken 2000), but only 16 percent of kindergarten teachers were members of racial/ethnic minority groups. In addition, kindergarten teachers were more likely to teach in classrooms where high percentages of children were of the same racial/ethnic background as their own. Thus, minority teachers were more likely to have taught a class where at least 75 percent of the children mirrored the teacher’s racial/ethnic background than teachers whose racial/ethnic background differed from the majority of children in the classroom.¹¹

¹¹ This relationship is also found when child-level data are examined. Twenty-eight percent of Black kindergarten children have a Black teacher compared with 2 percent of White children and 4 percent of Hispanic children. Twenty-seven percent of Hispanic kindergarten children have a Hispanic teacher compared with 2 percent of White children and 3 percent of Black children. Ninety-four percent of White kindergarten children have a White teacher compared with 65 percent of Black children and 65 percent of Hispanic children.

Teacher Credentials

Teacher credentials include many characteristics; among them are a teacher's postsecondary education and training, where knowledge of content and pedagogy are learned, and the years of teaching experience. States vary widely in the credentials they require of teachers (U.S. Department of Education 2001). The common indicators of teacher credentials examined in this report include highest degree earned, teaching certification and type of certification, and years of kindergarten teaching experience.

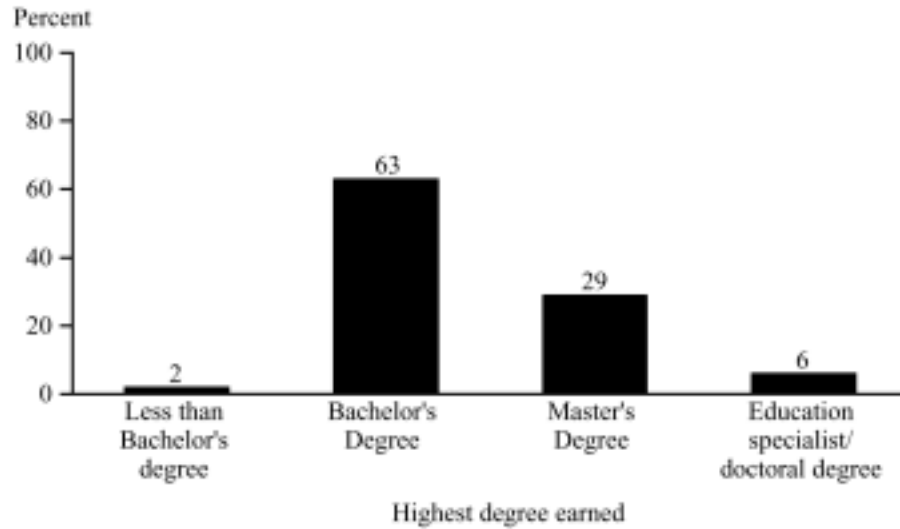
Degrees Earned

Every state requires all new teachers in public schools to hold a bachelor's degree (National Association of State Directors of Teacher Education and Certification 1998). In 1999–2000, the Schools and Staffing Survey found that 99.7 percent of all public school teachers and 93 percent of all private school teachers had completed a postsecondary education degree. About 54 percent of public and 65 percent of private school teachers had earned a baccalaureate degree only (U. S. Department of Education forthcoming).¹²

In 1998, 2 percent of all kindergarten teachers had not completed at least a bachelor's degree. For about 63 percent of kindergarten teachers, a bachelor's degree was the highest degree held. Twenty-nine percent had earned a master's degree, and 6 percent reported having an education specialist or doctoral degree (figure 7).

¹²U.S. Department of Education, National Center for Education Statistics, (forthcoming), Schools and Staffing Survey: 1999–2000 Electronic Codebook and Public-Use Data.

Figure 7. Percentage distribution of kindergarten teachers, by highest degree held: Fall 1998



NOTE: Due to small sample sizes, it was not possible to disaggregate the group of teachers with less than a bachelor's degree by detailed characteristics.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

Are teachers with certain educational backgrounds equally likely to have taught in kindergartens with different school characteristics, such as sector, location, or the percent of minority children in the kindergarten class? Kindergarten teachers in non-Catholic private schools were more likely to not have a bachelor's degree (13 percent) than were kindergarten teachers in public schools (less than 0.5 percent) or those in Catholic schools (3 percent) (table 6).

Table 6. Percent of kindergarten teachers with less than a bachelor's degree, by school sector: Fall 1998

School characteristic	Teachers with less than a bachelor's degree
All schools	2
School sector	
Public	#
Catholic	3
Other private	13

Estimate was less than 0.5 percent.

NOTE: Due to small sample sizes, it was not possible to disaggregate the group of teachers with less than a bachelor's degree by detailed characteristics.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

Table 7 displays the number and the percent of kindergarten teachers with a bachelor's degree, master's degree, or an education specialist/doctoral degree as their highest level of education, by school sector, school location, and percent minority classroom enrollment. Kindergarten teachers in Catholic schools were more likely to report a bachelor's degree as their highest level of education than were kindergarten teachers in public schools (77 percent vs. 62 percent). Furthermore, public school kindergarten teachers were more likely to report having earned a master's degree as their highest level of education (32 percent) compared with kindergarten teachers in Catholic schools (18 percent) and kindergarten teachers in other private schools (19 percent). Teachers in public schools were also more likely than teachers in Catholic schools to have received an education specialist certificate or doctoral degree (7 percent vs. 2 percent).

Table 7. Total number and percent of kindergarten teachers according to highest degree earned, by school sector, location, and percent minority classroom enrollment: Fall 1998

School and classroom characteristic	Number	Bachelor's degree	Master's degree	Education specialist/ Doctoral degree
All kindergarten teachers	190,381	63	29	6
School sector				
Public	151,728	62	32	7
Catholic	10,013	77	18	2
Other private	28,641	64	19	4
School location				
Large city	34,891	56	34	8
Midsize city	35,910	68	26	6
Suburbs/large town	75,968	62	30	4
Small town	17,958	59	30	10
Rural	25,654	68	24	8
Percent minority classroom enrollment				
Less than 10 percent	48,605	64	28	6
10 to 24 percent	30,544	59	32	7
25 to 49 percent	27,612	63	28	6
50 to 74 percent	20,423	57	33	8
75 percent or more	42,170	66	27	5

NOTE: Details may not add to totals because of rounding and because teachers with less than a bachelor's degree were excluded from the table. Due to small sample sizes, it was not possible to disaggregate the group of teachers with less than a bachelor's degree by detailed characteristics.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

Kindergarten teachers in small towns were more likely to have an education specialist or doctorate degree (10 percent) than were those in suburban locations (4 percent). No other statistically significant differences were found for the percent of teachers with various education levels by location.¹³ These data do not provide evidence that kindergarten teachers' educational degree was related to the racial/ethnic distribution of children in the classes they taught. No statistically significant differences were detected in the percentage of kindergarten teachers with various educational degrees when compared across different concentrations of minority enrollment in the classroom.

¹³ Some apparent differences were not statistically significant due to large standard errors.

Certification Status

Another component of teacher credentials is the teaching certificate. Teacher certification—licensure by the state in which one teaches—includes requirements for a bachelor’s degree, special courses, clinical experiences, and often some type of formal testing. Over 80 percent of public schools in the United States require teaching certificates of teacher applicants (Gruber et al. 2002). However, states differ in the ways in which they license or credential teachers (U.S. Department of Education 2001). Some states grant beginning teachers an initial license—a “probationary certificate”—for a limited number of years before granting a regular or standard certificate. The initial license is awarded to teachers who have met course work requirements but who must be evaluated on their classroom performance to earn full licensure. Some states also offer an additional certificate beyond the regular or standard certification allowing experienced teachers to earn an advanced credential based on their performance and experience. For example, the National Board for Professional Teaching Standards offers one form of advanced certification (U.S. Department of Education 2001). Other types of teaching certificates are a “temporary” or “emergency” certificate or a certificate for completion of an alternative certification program.

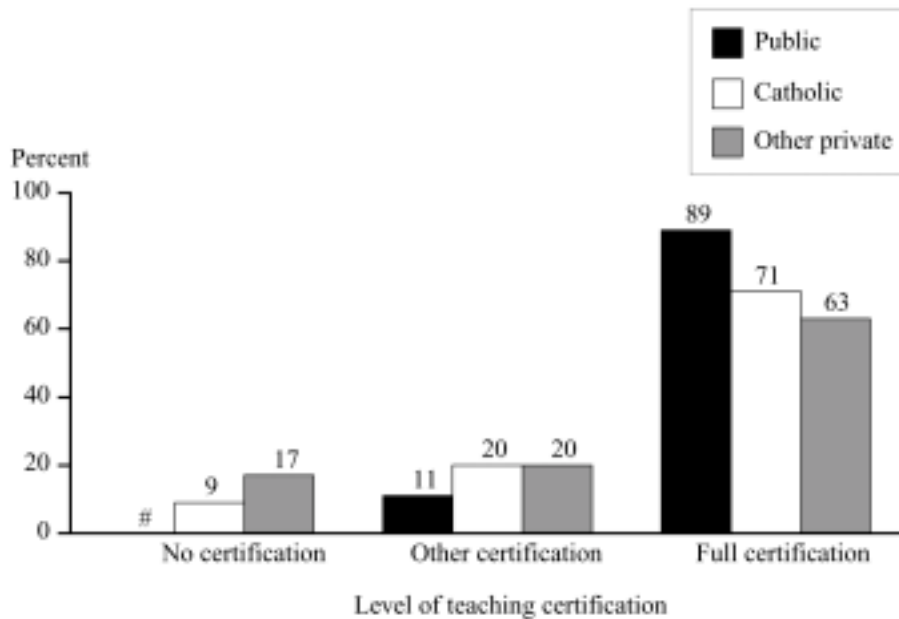
In this report, certification status has been grouped into three categories (full, other, and no certificate). Full certification refers to teachers with a regular or standard state certificate or an advanced professional certificate. Teachers who reported earning a temporary, probationary, provisional, or emergency certificate, or those who reported completing an alternative certification program, were grouped into the category “Other certificate” for these analyses.¹⁴

There has been some recent indication of a decrease in the number of schoolteachers with full teaching certification. Reports on California schools suggest that the practice of hiring uncertified teachers is more common in inner cities and in schools with high minority and poverty enrollment, and in the lower grades (Goe 2002). The increase in the hiring of uncertified teachers has been attributed to increases in enrollment and reductions in class sizes (Goe 2002; Henke et al. 1999).

¹⁴ In this report, teachers with regular or standard state certificates and those with advanced professional certificates were grouped together as “fully certified” because sample sizes for those with advanced professional certificates were small. In the group of those with other types of certification, 2 percent had completed an alternative certification program (too small a group for analysis). The new ESEA initiatives in the area of alternative certification were authorized into law after these data were collected.

Eighty-four percent of all kindergarten teachers reported having full certification, 12 percent reported having other types of certification, and 3 percent reported having no teaching certificate.¹⁵ The distribution of teachers by levels of teaching certificate by school sector is shown in figure 8.

Figure 8. Percentage distribution of kindergarten teachers with various levels of certification, by school sector: Fall 1998



Rounds to zero.

NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

Less than one-half of a percent of public school kindergarten teachers were working without a teaching certificate. This was less than the percent of Catholic school kindergarten

¹⁵ Teachers with probationary certificates are not included in the estimate of those with full certification because probationary certificates were grouped along with temporary and emergency certification on the ECLS–K questionnaire. Published reports based on the 1999–2000 Schools and Staffing Survey have treated teachers with probationary certificates as certified. Data from the 1999–2000 SASS indicate that 3 percent of public school kindergarten teachers in 1999–2000 who were certified had a probationary certificate. Thus, these estimates are likely to be on the order of 3 percentage points lower than those that would be attained using the SASS definition of certified teachers.

teachers (9 percent) and other private school kindergarten teachers (17 percent) who were working without a teaching certificate. Public school kindergarten teachers were the most likely to report having full certification (89 percent vs. 71 percent of Catholic and 63 percent of other private school teachers). These results were not unexpected because not all private schools require teachers to have teaching certificates. Private schools accept teacher certifications from private school associations or organizations as well as standard state certificates. For example, 39 percent of private schools require a standard state certificate in a field to be taught and 18 percent require certificates from a private school association or organization. Among the private schools that require standard state certificates, 65 percent are Catholic, 21 percent are other religious, and 42 percent are nonsectarian (Gruber et al. 2002).

To ascertain whether kindergarten teachers with no teaching certificate or those who were not fully certified were more often found in certain types of classroom settings, levels of certification were examined by school location, the percentage of minority children enrolled in the classroom, and years of kindergarten teaching experience (table 8).

Table 8. Number and percent of kindergarten teachers with various levels of certification, by school sector, school location, percent minority classroom enrollment, and years of kindergarten teaching experience: Fall 1998

School and teacher characteristic	Number	Other certification	Full certification
All kindergarten teachers	190,381	12	84
School sector			
Public	151,728	11	89
Catholic	10,013	20	71
Other private	28,641	20	63
School location			
Large city	34,891	18	75
Midsize city	35,910	10	87
Suburbs/large town	75,968	12	86
Small town	17,958	9	87
Rural	25,654	11	88
Percent minority classroom enrollment			
Less than 10 percent	48,605	9	87
10 to 24 percent	30,544	12	87
25 to 49 percent	27,612	10	86
50 to 74 percent	20,423	11	85
75 percent or more	42,170	20	77
Years teaching kindergarten			
Less than 3 years	56,834	27	66
3 to 9 years	67,037	9	89
10 to 19 years	45,746	3	95
20 years or more	19,017	3	96

NOTE: Details may not add to totals because of rounding and because teachers with no certification were excluded from the table. Other certification refers to temporary, probationary, provisional, emergency, or other alternative certification.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

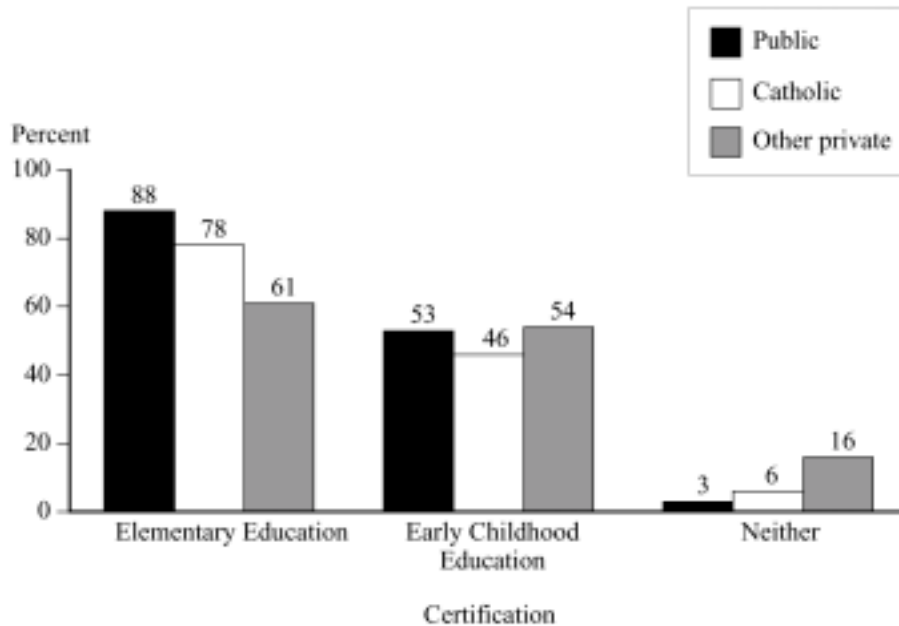
Overall, most kindergarten teachers were fully certified but differences were found by some school and classroom characteristics. Kindergarten teachers in large city schools were less likely to have full certification than kindergarten teachers in other localities (75 percent vs. 86 to 88 percent). In addition, 77 percent of kindergarten teachers in classrooms with 75 percent or more minority enrollments had full certification compared with over 86 percent of teachers with less than 50 percent minority children enrolled. These findings are similar to other findings that teachers without a teaching certificate were more likely to work in high minority schools (Goe 2002; Ingersoll and Gruber 1996).

Teaching certification levels were also examined in relation to the number of years a teacher had spent teaching kindergarten. Teachers with less than 3 years of experience in kindergarten classrooms were least likely to have full certification (66 percent vs. 89 to 96 percent). Teachers with 3 to 9 years of kindergarten teaching experience were less likely to have full certification than their peers who had taught kindergarten for 10 years or more (89 percent vs. 95 and 96 percent). The finding that experience is related to the likelihood of being fully certified is not unexpected. At least part of this relationship can be explained by the fact that some states award provisional and probationary certificates to beginning teachers for a limited number of years (typically 3) as a requirement for a full certificate (Feistritzter and Chester 1995; U. S. Department of Education 2001).

Specialization

In the ECLS-K, teachers were asked to report their area of specialization and whether they were certified in early childhood education, elementary education, or had some other type of certification. The percents of kindergarten teachers who were certified in elementary education and early childhood education by school sector are shown in figure 9.

Figure 9. Percent of kindergarten teachers who were certified in elementary and early childhood education, by school sector: Fall 1998



NOTE: Percents total more than 100 percent because some teachers held both types of certificates.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

Teachers in non-Catholic private schools were less likely to hold teaching certificates in elementary education than were kindergarten teachers in other school sectors. Sixty-one percent of non-Catholic private school kindergarten teachers held certificates in elementary education compared with 88 percent of public school teachers and 78 percent of Catholic school teachers. In addition, 16 percent of non-Catholic private school kindergarten teachers reported having neither an elementary nor an early childhood education certificate compared with 3 percent of public school teachers and 6 percent of teachers in Catholic schools.

Teachers' area of specialization was also examined in terms of school location, the percent of minority children in the classroom, and years of kindergarten teaching experience (table 9). No consistent differences in the kindergarten teachers' areas of specialization were found in relation to the school location or to the percent of minority children enrolled in the classroom. However, experience teaching kindergarten was found to be related to the likelihood of having an early childhood education certificate. Teachers with less than 3 years of kindergarten classroom experience were not as likely to hold an early childhood certificate as were more experienced kindergarten teachers (44 percent vs. 55 to 59 percent).

Table 9. Number of kindergarten teachers and percent who were certified in elementary and early childhood education, by selected school characteristics and kindergarten teaching experience: Fall 1998

School and teacher characteristic	Number	Percent of kindergarten teachers certified in		
		Early childhood education	Elementary education	Neither area of certification
All kindergarten teachers	190,381	53	84	5
School sector				
Public	151,728	53	88	3
Catholic	10,013	46	78	6
Other private	28,641	54	61	16
School location				
Large city	34,891	51	83	7
Midsize city	35,910	58	83	5
Suburbs/large town	75,968	55	82	5
Small town	17,958	48	91	6
Rural	25,654	47	86	2
Percent minority classroom enrollment				
Less than 10 percent	48,605	52	88	4
10 to 24 percent	30,544	59	81	4
25 to 49 percent	27,612	60	85	7
50 to 74 percent	20,423	52	78	5
75 percent or more	42,170	48	85	5
Years teaching kindergarten				
Less than 3 years	56,834	44	82	9
3-9 years	67,037	55	84	4
10-19 years	45,746	59	85	3
20 years or more	19,017	59	87	4

NOTE: Row percents sum to more than 100 percent because some teachers held both types of certificates.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

Kindergarten Teaching Experience

Teaching experience has been found to have variable effects on student achievement. Some studies find little effect (e.g., Wenglinsky 2000), while others suggest that experience has a small overall effect on student achievement (e.g., Sutton and Soderstrom 1999). In the 1999–2000 school year, elementary school teachers in public schools had more years of teaching than did their peers in private schools (14.5 years vs. 12.6 years, respectively) (U.S. Department of Education forthcoming).¹⁶ However, the results in this study were not broken down specifically for kindergarten teachers. An earlier report about public school kindergarten teachers found that, on average, teachers had about 9 years of kindergarten teaching experience (Heaviside and Farris 1993).

In the ECLS-K, kindergarten teachers were asked to indicate the number of years they had spent teaching kindergarten. The average number of years spent teaching kindergarten, and the percentage of teachers who had various levels of kindergarten teaching experience, are shown in table 10.

¹⁶ U.S. Department of Education, National Center for Education Statistics, (forthcoming), Schools and Staffing Survey: 1999–2000 Electronic Codebook and Public-use Data.

Table 10. Number of kindergarten teachers, average years of kindergarten teaching experience and percentage distribution of teachers, by kindergarten teaching experience, selected school characteristics, and percent minority classroom enrollment: Fall 1998

School characteristics	Number	Average years teaching kindergarten	Percentage distribution kindergarten teaching experience			
			Less than 3 years	3 to 9 years	10 to 19 years	20 years or more
All kindergarten teachers	190,381	8.1	30	36	24	10
School sector						
Public	151,728	8.5	28	37	25	11
Catholic	10,013	7.9	30	36	29	7
Other private	28,641	6.0	43	32	19	6
School location						
Large city	34,891	7.0	38	35	21	7
Midsize city	35,910	8.5	31	36	22	12
Suburbs/large town	75,968	8.4	28	36	26	10
Small town	17,958	7.9	26	40	24	9
Rural	25,654	8.6	27	36	27	11
Percent minority classroom enrollment						
Less than 10 percent	48,605	9.0	27	36	25	14
10 to 24 percent	30,544	8.6	24	39	29	9
25 to 49 percent	27,612	8.7	25	36	31	9
50 to 74 percent	20,423	7.7	35	34	21	11
75 percent or more	42,170	6.8	40	34	19	8

NOTE: Details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

On average, kindergarten teachers in the ECLS-K reported having about 8 years of kindergarten teaching experience. Public school kindergarten teachers had more years of kindergarten teaching experience than did teachers in non-Catholic private schools (8.5 years vs. 6.0 years). There were no differences in the average number of years teachers had spent teaching kindergarten by school location. However, teachers whose kindergarten classrooms had 75 percent or more minority children enrolled had fewer years of kindergarten teaching experience than did teachers in classrooms with less than 50 percent minority children enrolled (6.8 years of experience vs. 8.6 to 9.0 years of experience).

Similar conclusions were found when examining the percentage of teachers with different *levels* of kindergarten teaching experience as were found when looking at the average number of

years teaching kindergarten by school sector and minority enrollment. Forty-three percent of non-Catholic private school teachers reported teaching kindergarten for less than 3 years compared with 28 percent of public school teachers. Also, a higher percent of public kindergarten teachers than non-Catholic private school teachers reported teaching for 20 years or more (11 percent vs. 6 percent). Kindergarten teachers with 75 percent or more minority children in their classes were more likely to have less than 3 years of kindergarten teaching experience than teachers who had less than 50 percent minority enrollment in their classes (40 percent vs. 24 to 27 percent). Other studies have also found that less experienced teachers tend to teach more often in classrooms and schools with high minority enrollments (Goe 2002; Ingersoll and Gruber 1996; Henke et al. 2000).

Public School Kindergarten Teachers in High Poverty Schools

Elementary school-aged children usually attend schools in their neighborhoods, and these neighborhoods tend to be homogeneous in terms of the socioeconomic status of the families who live there. Entwisle, Alexander, and Steffel Olson (1997) found that the poverty concentration in schools was related to the socioeconomic status of families in the neighborhoods where the schools were located. Furthermore, Lee and Burkham (2002) report that children from lower socioeconomic status families are more likely than their more advantaged peers to attend schools with lower student achievement, fewer resources (e.g., a lower percentage of teachers with course work in curricular methods, certificates in early childhood and elementary education, and teaching experience) and poorer neighborhoods or social conditions (e.g., more traffic, presence of litter and trash near school). This section of findings examines the variability of the characteristics of public school kindergarten teachers by the level of poverty in the schools where they teach.¹⁷ A standard indicator used to describe the socioeconomic status of a school is the percent of students eligible for free or reduced-price lunch. Eligibility for free or reduced-priced meals is based on household income; household income must be below 185 percent of the federal poverty level to qualify for reduced-priced meals and below 130 percent of the federal poverty level to qualify for free meals.¹⁸ For the purpose of this report, schools reporting 50 percent or more enrolled children eligible for free or reduced-priced meals were classified as high poverty

¹⁷ The analysis of the poverty status of a school's student population was restricted to public schools.

¹⁸ Guidelines for the federal poverty threshold are updated each year by the Census Bureau and are used mainly for statistical purposes.

schools, and schools with between 0 and 49 percent of enrolled children eligible for free or reduced-priced meals were designated as lower poverty schools.¹⁹

Forty-eight percent of public school kindergarten teachers worked in schools where 50 or more percent of the children were eligible for free or reduced-price lunch, and 52 percent of public school kindergarten teachers were in schools where 0-49 percent of the total school enrollment were eligible for free or reduced-priced lunch (table 11).

Table 11. Percentage distribution of public school kindergarten teachers, by poverty concentration of the school, teacher race/ethnicity, school location, and percent minority classroom enrollment: Fall 1998

Teacher and school characteristic	Poverty concentration of school ¹	
	Lower poverty 0-49 percent	High poverty 50 percent or more
All public school kindergarten teachers	52	48
Teacher race/ethnicity		
White, non-Hispanic	91	79
Black, non-Hispanic	3	9
Hispanic	4	9
Other, non-Hispanic	2	3
School location		
Large city	10	16
Midsize city	19	21
Suburbs/large town	46	33
Small town	11	9
Rural	14	20
Percent minority classroom enrollment		
Less than 10 percent	35	18
10 to 24 percent	28	12
25 to 49 percent	20	17
50 to 74 percent	10	17
75 percent or more	8	37

¹ The school's concentration of poverty was based on a composite of free and reduced-priced lunch and participation in a "schoolwide" Title I program.

NOTE: Details may not add to totals because of rounding. "Other, non-Hispanic" includes teachers who indicated more than one non-Hispanic race.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), "Teacher Questionnaires," fall 1998, Restricted-Use Data File.

¹⁹ The school's poverty level status was a composite variable created to account for the high rate of missing data for the number of students eligible to receive free and reduced-priced meals. For more details, see the Methodology and Data Reliability section.

Racial/Ethnic Distribution of Teachers, by School Poverty Level

The racial/ethnic distribution of public school kindergarten teachers differs by the concentration of poverty in the schools. A smaller percent of teachers in high poverty schools were White (79 percent) compared with teachers in schools with lower concentrations of poverty (91 percent). A larger percent of public school kindergarten teachers in high poverty schools were Black (9 percent) and Hispanic (9 percent) compared with the teachers in low poverty schools (3 and 4 percent, respectively).

The concentration of minority children enrolled in the teachers' classes was also related to the poverty concentration at the schools in which they worked. Thirty-seven percent of public school kindergarten teachers in high poverty schools taught classes in which more than 75 percent of the children were members of racial/ethnic minority groups. This compares to 8 percent of the teachers in schools with lower concentrations of children from poor families. Conversely, a smaller percent of kindergarten teachers working in a high poverty school had fewer than 10 percent minority children in their classes (18 percent) or between 10 and 24 percent minority children in their classes (12 percent) compared with those working in lower poverty schools (35 percent and 28 percent, respectively).

There were no statistically significant measurable differences when the percent of public school kindergarten teachers who taught in high poverty schools was compared with the teachers in lower poverty schools across school location.²⁰

Kindergarten Teacher Credentials in High Poverty Schools

Do the educational credentials and teaching experience of public school kindergarten teachers vary by the poverty level of the school? Do teachers in high poverty schools have the same educational credentials and teaching experience as those teaching in schools with lower concentrations of poverty?

²⁰ Some apparent differences were not statistically significant due to large standard errors.

Table 12. Percent of public school kindergarten teachers with various qualifications, by the poverty concentration of the school: Fall 1998

Teacher background characteristic	Poverty concentration of school ¹	
	Lower poverty 0-49 percent	High poverty 50 percent or more
Highest level of education		
Bachelor's degree	60	64
Master's degree	33	29
Education specialist/ Doctoral degree	7	7
Certification		
Other certification	8	10
Full certification	91	89
Specialization		
Early childhood education	55	52
Elementary education	89	86
Neither area of certification	2	3
Average years experience teaching kindergarten	9.1	8.2
Years teaching kindergarten		
Less than 3 years	24	31
3 to 9 years	37	36
10 to 19 years	27	22
20 years or more	12	11

¹The school's concentration of poverty was based on a composite of free and reduced-priced lunch and participation in a "schoolwide" Title I program.

NOTE: Percentages of teachers with various areas of specialization sum to more than 100 because teachers can have more than one area of specialization. Other details may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), "Teacher Questionnaires," fall 1998, Restricted-Use Data File.

In general, public school kindergarten teachers had earned at least a bachelor's degree. The majority held full certification in either early childhood education or elementary education regardless of the level of poverty in the school (table 12). However, a higher percent of teachers in the high poverty schools had less than 3 years of kindergarten teaching experience (31 percent) compared with those in lower poverty schools (24 percent). In addition, a smaller percent of teachers from the high poverty schools had between 10 to 19 years of teaching experience (22 percent) compared with those in lower poverty schools (27 percent). Teachers in low poverty schools had on average 9.1 years of experience teaching kindergarten, while those in the higher poverty schools had 8.2 years. It appears that while teachers in high poverty schools held similar

educational degrees, certifications, and areas of specialization as their counterparts teaching in schools with lower concentrations of poor children, they tended to have fewer years of teaching kindergarten experience.

Summary

This report presents a profile of kindergarten teachers in the United States in the fall of 1998. It describes the demographic characteristics of the kindergarten teachers. It also documents the professional credentials of our nation's kindergarten teachers.

The profile of the kindergarten teacher is similar to that of all elementary school teachers (U.S. Department of Education forthcoming). For instance, the majority of teachers in elementary schools are female, White, non-Hispanic, and have completed at least a baccalaureate degree. Their average age is 42 years old.²¹ The majority of kindergarten teachers are also female, White, non-Hispanic, and have completed at least a baccalaureate degree, but they are generally slightly younger than elementary school teachers, with an average age of 41.

Kindergarten teachers are not as demographically diverse as the student population. Fifty-one percent of first-time kindergartners are male (West, Denton and Germino Hausken 2000), while 2 percent of the kindergarten teachers are male. Almost half of first-time kindergartners are members of minority groups, whereas approximately 15 percent of kindergarten teachers are members of minority groups. Although a difference exists between the overall proportions of racial/ethnic minority teachers and minority children, this report finds that minority teachers are more likely than White teachers to be working in classrooms with high concentrations of minority children.

The findings in this report show that the majority of kindergarten teachers have earned a baccalaureate degree and have full certification in elementary education and/or early childhood education. However, some interesting differences associated with school sector, location, racial/ethnic diversity of the classroom, and level of poverty concentration of school enrollment are apparent. Kindergarten teachers in non-Catholic private schools are less likely to have a bachelor's degree than kindergarten teachers in public or Catholic schools. Kindergarten teachers

²¹ U.S. Department of Education, National Center for Education Statistics, (forthcoming), Schools and Staffing Survey: 1999–2000 Electronic Codebook and Public-Use Data.

in large city schools and in classrooms with high concentrations of minority children are least likely to have full certification. Additionally, kindergarten teachers in classrooms with high concentrations of minority students and those in public schools with high concentrations of low-income children have, on average, fewer years of kindergarten teaching experience than teachers in schools with lower concentrations of minority students and lower income students.

The ECLS-K is designed to provide a wealth of information on children's cognitive, socioemotional, and physical development from kindergarten through fifth grade. It offers a unique perspective on kindergarten teachers and their classrooms in that it provides the first nationally representative data on kindergarten teachers across program types and schools. The findings in this report suggest some areas for further study. One area for future study relates to educational reform initiatives on teacher preparation and student outcomes. Researchers could examine the teacher qualifications data along with the child assessment data from ECLS-K to explore relationships between different measures of teacher credentials and kindergartners' educational outcomes. A key question might be whether these measures of teacher credentials are related in the same way to children's achievement in kindergarten through third grade as some have suggested they are in later grades. Researchers can also use the ECLS-K data to explore the relationships between different measures of teacher qualifications and teaching practices in the primary grades as well as examine the effects on students of teachers having the same or different ethnic backgrounds. These data can also be used by researchers interested in issues pertaining to the inclusion of children with special needs, such as children with disabilities and English language learners.

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Methodology and Data Reliability

Survey Methodology

The Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K) was conducted by Westat for the U.S. Department of Education, National Center for Education Statistics (NCES). It was designed to provide detailed information on children’s early school experiences. The study began in the fall of the 1998–99 school year. The children participating in the ECLS-K are followed longitudinally through the fifth grade.

Sample Design

Sampling for the ECLS-K involved a dual-frame, multistage sampling design. The first stage of sampling involved the selection of 100 primary sampling units (PSU) from a national sample of PSUs. The PSUs were counties and county groups. Public and private schools with kindergarten programs were then selected within the PSUs. Public schools were selected from the public school frame, Common Core of Data, and private schools were selected from a private school frame developed from the Private School Survey.²² Every kindergarten teacher at these schools and approximately 23 kindergarten children from each of the sampled schools were included in the ECLS-K sample.

This sampling strategy resulted in a nationally representative sample of 22,625 kindergarten children and 3,231 kindergarten teachers at 1,277 schools during the 1998–99-school year. Both full-day and half-day kindergarten programs were a part of the study. The sample included children from different racial/ethnic and socioeconomic backgrounds and included oversamples of Asian children, private kindergartens, and private school kindergartners. The study supports separate estimates of public and private school kindergartners; Black, Hispanic, White, and Asian children; and children from different socioeconomic backgrounds.

Instruments

The data presented in this report are based on kindergarten teachers’ responses to two self-administered questionnaires, which were distributed to all of the kindergarten teachers in

²² During the spring of 1998, Westat identified new schools that were not found on either frame. A sample of these schools was included in the ECLS-K school sample.

each sampled school. These questionnaires were completed during the fall kindergarten round of data collection—September to December 1998. The first questionnaire collected data from teachers about the characteristics of their classes, and about the children in their classes. Teachers were asked to respond separately for each kindergarten class that they taught—half-day morning, and/or half-day afternoon, and/or full day. The second teacher instrument collected data on class organization, typical class activities, evaluation methods, teachers' views on kindergarten readiness, the school's climate and environment, and information on teachers' demographics and qualifications. Teachers did not respond separately for each of their classes when completing the second questionnaire, since the information collected was not specific at the class level. Kindergarten teachers with sampled children in their classrooms also completed a third, child-specific questionnaire for each sampled child that collected information on the child's social skills and approaches to learning. These data were not used in developing this report.

Response Rates

Overall, 74 percent of the 1,277 schools agreed to participate in the study.²³ More schools participated during the spring of the base year (n=940) than during the fall (n=880). Due to the lower than expected cooperation rate for public schools in the fall of the base year, 73 additional public schools were included in the sample as substitutes for schools not participating in the fall. These schools were included in order to meet the target sample sizes for students. Substitute schools were not included in the school response rate calculations.

Of the 3,231 sampled kindergarten teachers, 3,047 completed at least part of the fall teacher instrument on teacher characteristics for a 94.3 percent cooperation rate and an overall response rate of 69.8 percent (74% X 94.3%). There were no large differences in cooperation rates for subgroups of kindergarten teachers: 94.2 percent of sampled public school teachers participated, 97.2 percent of sampled Catholic school teachers participated, and 93.5 percent of other private school teachers participated.

The ECLS-K school response rates were comparable to or exceeded those of past NCES longitudinal surveys. In the National Education Longitudinal Study of 1988 (NELS:88), 69.7 percent of the originally sampled schools agreed to participate in the base year. No teacher-level

²³ All response rates specified were the weighted response rates.

response rates were calculated in NELS:88 since it was not a probability sample of teachers; however, teachers completed individual student ratings for about 89.6 percent of the students, compared to 91.2 percent of the ECLS-K students with teacher-completed ratings. Thus, overall the ECLS-K teacher and school cooperation rates were comparable to other school-based longitudinal studies conducted at NCES.

A nonresponse bias analysis was conducted to determine if substantial bias had been introduced due to school nonresponse. Five different approaches were used to examine the possibility of bias in the ECLS-K sample. First, weighted and unweighted response rates for schools, children, parents, teachers, and school administrators were examined to find response rate differences by characteristics of schools (e.g., urbanicity, region, school size, percent minority, and grade range) and children (e.g., sex, age, race-ethnicity). Second, estimates based on the ECLS-K respondents were compared to estimates based on the full sample. The distributions of schools by school type, urbanicity, region, and the distributions of enrollment by kindergarten type (public vs. private), race/ethnicity, urbanicity, region and eligibility for free and reduced-price lunch were compared for the responding schools and all the schools on the sampling frame. Third, estimates from the ECLS-K were compared with estimates from other data sources (e.g., Schools and Staffing Survey, Current Population Survey, National Household Education Survey, Survey of Income and Program Participation). Fourth, estimates using the ECLS-K unadjusted weights were compared with estimates using the ECLS-K weights adjusted for nonresponse. The size of the differences in estimates obtained with these two different weights indicated the degree of potential bias. Fifth, and last, simulations of nonresponse were conducted.

The results of these analyses were summarized in the ECLS-K User's Manual and will be reported in a working paper.²⁴ Overall, the type of school was the major source of variation in the response rates, and weighting procedures were developed specifically to address this variation. The only tabulated rates that suggested a potential bias were for the school administrator questionnaires in public schools with a high percent of minority enrollment. Otherwise, the rates were relatively consistent and not likely to result in large nonresponse bias. The comparisons of the sample estimates with no adjustment for nonresponse to the population values did not indicate large nonresponse bias in the ECLS-K. The teacher estimates from the ECLS-K were compared to estimates from the Fast Response Survey of 1993-94 and the SASS from the same period, and

²⁴ User's Manual for the ECLS-K Longitudinal Kindergarten – First Grade Public-Use Data Files and Electronic Codebook (2002). NCES 2002–149.

there were some substantial differences in the estimates. These comparisons however, were the least informative in terms of nonresponse bias because other factors such as differences in respondents confound the comparisons. The fourth approach to studying nonresponse involved comparing ECLS-K estimates that included the adjustments for nonresponse to estimates made from weights without nonresponse adjustments. The unadjusted weights did not include substitute schools, so that substitution was viewed as a nonresponse adjustment. All the differences in the estimates were small, supporting the hypothesis that nonresponse bias in these ECLS-K estimates was not substantial. The simulated nonresponse bias estimates for mean scores from the child assessment parent interview, and teacher interview data, revealed that lower response rates did not result in substantial biases in any of the estimates. Either the respondents and nonrespondents had similar characteristics, or the weighting procedures compensated for the differences. The only discernible pattern was in the child assessment scores, where the nonrespondents tended to have lower scores. While the differences were not substantive, continued attention to procedures to keep nonresponse bias in future rounds low was warranted. Thus, overall findings from these analyses suggested that there were no strong biases due to school nonresponse. In particular, there was no strong evidence of a bias in the types of estimates found in this report.

Data Reliability

Estimates produced using data from the ECLS-K are subject to two types of error, sampling and nonsampling errors. Nonsampling errors can be due to errors made in the collection and processing of data. Sampling errors can occur because the data were collected from a sample rather than a complete census of the population.

Nonsampling Errors

Nonsampling error is the term used to describe variations in the estimates that may be caused by population coverage limitations, nonresponse bias, and measurement error, as well as data collection, processing, and reporting procedures. The sources of nonsampling errors are typically problems like unit and item nonresponse, the differences in respondents' interpretations of the meaning of the questions, response differences related to the particular time the survey was conducted, and mistakes in data preparation.

In general, it is difficult to identify and estimate either the amount of nonsampling error or the bias caused by this error. In the ECLS-K, efforts were made to prevent such errors from

occurring and to compensate for them where possible. For instance, during the survey design phase, focus groups and cognitive laboratory interviews were conducted for the purpose of assessing respondent comprehension of questions and terms and the perceived sensitivity of items. The design phase also entailed a field test that evaluated questionnaire items as well as the implementation procedures for the survey. Also, by sampling all kindergarten teachers working at sampled schools, coverage error and bias were reduced.

Another potential source of nonsampling error was respondent bias, which occurs when respondents systematically misreport (intentionally or unintentionally) information in a study. One potential source of respondent bias in this survey was social desirability bias. For example, teachers may report that they spend more time with their students in teacher-directed individualized instruction than might be obtained through classroom observation. If there were no systematic differences among specific groups under study in their tendency to give socially desirable responses, then comparisons of the different groups will accurately reflect *differences* among the groups. In order to minimize bias, all items were subjected to multiple cognitive interviews and field tests, and actual teachers were involved in the design of instruments. Readers should be aware that respondent bias may be present in this survey as in any survey. It was not possible to state precisely how such bias may affect the results.

Sampling Errors

Sampling error occurs when the discrepancy between a population characteristic and the sample estimate arises because not all members of the reference population are sampled for the survey. The size of the sample relative to the population and the variability of the population characteristics both influence the magnitude of sampling error. The sample of kindergarten teachers from the 1998–99 school year was just one of many possible samples that could have been selected. Therefore, estimates produced from the ECLS-K sample may differ from estimates that would have been produced from other samples. This type of variability was called sampling error because it arises from using a sample of kindergarten teachers in 1998–99, rather than all kindergarten teachers in that year.

The standard error is a measure of the variability due to sampling when estimating a statistic. Standard errors for estimates presented in this report were computed using a jackknife replication method. Standard errors can be used as a measure for the precision expected from a particular sample. The probability that a complete census count would differ from the sample

estimate by plus or minus one standard error was 68 percent. The chance that the difference would be less than 1.65 standard errors was about 90 percent, and that the difference would be less than 1.96 standard errors, about 95 percent.

Standard errors for all of the estimates are included in the appendix to this report. These standard errors can be used to produce confidence intervals. For example, it was estimated that kindergarten teachers have, on average, 8.1 years of kindergarten teaching experience, and this statistic has a standard error of 0.20. Therefore, it can be stated with 95 percent confidence that the actual average number of years of kindergarten experience for the total population of kindergarten teachers in 1998–99 was between 7.7 and 8.5 years ($1.96 \times .20 = 0.39$; confidence interval = $8.1 \pm .39$).

Special procedures for estimating the statistical significance of the estimates were employed because the data were collected using a complex sample design. Complex sample designs, like that used in the ECLS-K, result in data that violate the assumptions that were normally required to assess the statistical significance of the results. Frequently, the standard errors of the estimates were larger than would be expected if the sample was a simple random sample and the observations were independent and identically distributed random variables. WesVarPC was used to calculate standard errors for this and other ECLS-K reports.

Replication methods of variance estimation were used to reflect the actual sample design used in the ECLS-K. A form of the jackknife replication method (JK2) using 90 replicates was used to compute unbiased estimates of the standard errors of the estimates in this report. The jackknife methods were used to estimate the precision of the estimates of the reported national percentages and means. To test the difference between estimates, Student's *t* statistic was employed, using unbiased estimates of standard errors derived by the replication methods mentioned above.

Even when there is no actual difference between population means or percentages, when the sample estimates are being compared, there is a 5 percent chance of getting a significant *F* or *t* value from sampling error alone. As the number of comparisons being made increases, the chance of making this type of error also increases. A Bonferroni adjustment procedure was used to correct significance tests for multiple comparisons. This method adjusts the significance level for the total number of comparisons made with a particular classification variable. For example, the total number of comparisons for the type of school was three (i.e., public school teachers vs. Catholic school teachers, public school teachers vs. non-Catholic private school teachers,

Catholic school teachers vs. non-Catholic private school teachers). Thus the significance criterion for each school type comparison was adjusted to $p = 0.0167$ (i.e., $0.05/3$).

Weighting

In order to produce national estimates from the ECLS-K data collected during the fall of the 1998-99 school year, the sample data were weighted. Weighting the data adjusts for unequal selection probabilities at the school level and adjusts for school and teacher nonresponse. The first stage of the weighting process assigns weights to the sampled primary sampling units (PSUs) equal to the inverse of the PSU probability of selection.²⁵ The second stage of the weighting process assigns weights to the schools sampled within PSUs. The base weight for each sampled school was the PSU weight multiplied by the inverse of the probability of selecting the school. The base weights for eligible schools were adjusted for nonresponse. These adjustments were made separately for public and private schools.

At each school sampled in the beginning of the study, all kindergarten teachers were included in the study. Each of these schools was considered a respondent if it had at least one completed teacher questionnaire, part B (which collected teacher-level information on demographics, attitudes, etc.). The teacher weights were computed in two stages. First, the school base weights were adjusted for school nonresponse. Then, the teacher weights were computed as the school nonresponse adjusted weights adjusted for teachers' nonresponse. Only kindergarten teachers who completed part B of the teacher questionnaire were assigned valid, nonzero weights. The fall teacher nonresponse adjusted weight variable was B1TW0 on the ECLS-K base-year data file.

Analytic Variables and Data File

Variables from the ECLS-K fall teacher data file were modified in some cases when writing this report. This section describes new variables that were derived from original variables on the data file. Analyses for this report were completed using data from the ECLS-K Base Year Electronic Code Book (ECB) Teacher Catalog.

²⁵ The approach used to develop weights for the ECLS-K was described in the *ECLS-K User's Manual* and the *ECLS-K Methodology Report*.

Derived Variables

A number of variables used in this report were derived by combining information from one or more questions in the ECLS-K. The derivation of key variables is described in this section, with the original file variables from the ECLS-K Base Year Electronic Codebook (ECB) indicated in all capital letters.

Average percent minority enrollment in classroom. This variable was constructed using responses to three variables: percent minority students in morning classrooms (A1APMIN), percent minority students in afternoon classrooms (A1PPMIN), and percent minority students in all-day classrooms (A1DPMIN). The mean percent minority enrollment across all three variables was calculated for each teacher, based only on the non-missing information for each teacher. For instance, if a teacher taught only an all-day class, the mean percent minority enrollment in the classroom would be equal to the percent minority students in the all-day classroom. If a teacher taught a morning and an afternoon class, the mean percent minority enrollment in the classroom would be equal to the sum of the percent minority enrollment in the two classrooms divided by two.

Teacher certification. This variable was constructed using responses to two dichotomous variables: certified in early childhood education (B1ERLYCT), and certified in elementary education (B1ELEMCT). The variables were combined to form four categories: (1) only elementary education certification, (2) only early childhood certification, (3) both elementary and early childhood certification, and (4) neither elementary nor early childhood certification.

Teacher's race/ethnicity. The race/ethnicity composite was constructed from two teacher-reported variables: ethnicity and race. New Office of Management and Budget (OMB) guidelines were followed specifying that a respondent may select more than one race. Thus, respondents were asked to first identify whether they were Hispanic (B1HISP) and then to select one or more races (original variable was split into five race variables, B1RACE1, B1RACE2, B1RACE3, B1RACE4, and B1RACE5, to allow for multiracial designation). The following were the seven composite race/ethnicity categories derived from the answers to those two items: White, non-Hispanic; Black, non-Hispanic; Hispanic; Asian; Native Hawaiian or other Pacific Islander; American Indian or Alaska Native; and more than one race specified, non-Hispanic. Due to sample size restrictions, this publication examines only the categories of White, non-Hispanic;

Black, non-Hispanic; Hispanic; and a collapsed group of other, non-Hispanic and those that indicated more than one race.

School location. The school location is assigned on the basis of the school's physical address, or mailing address, if the former is not reported. The five location categories used in this report are as follows:

- Large city—central city of a metropolitan statistical area (MSA) or consolidated MSA (CMSA), with a population of at least 250,000.
- Midsize city—central city of an MSA or CMSA, with a population less than 250,000.
- Suburbs/Large town—urban fringe of a large or midsize city, and large town.

Urban fringe of a large city—any incorporated place, Census-designated place (CDP), or non-place territory within a CMSA or MSA of a large city and defined as urban by the U.S. Bureau of the Census;

Urban fringe of a midsize city—any incorporated place, CDP, or non-place within a CMSA or MSA of a midsize central city and defined as urban by the U.S. Bureau of the Census; or

Large town—an incorporated place or CDP with a population of at least 25,000 and located outside a CMSA or MSA.

- Small town—an incorporated place or CDP with a population between 2,500 and 24,999 and located outside a CMSA or MSA.
- Rural—any incorporated place, CDP, or non-place territory designated as rural by the U.S. Bureau of the Census.

Poverty concentration of the school. The school poverty variable used for these analyses comes from the school administrator questionnaire, completed in the spring of 1999. It was calculated only for public schools. Administrators reported the number of children at their school who were eligible for free lunch and for reduced-priced lunch. The two values were added together and converted to a percent of the school's total enrollment. However, these items on the school administrator questionnaire had a high level of item nonresponse (these data were missing for approximately 38 percent of public schools).

Schools qualify for schoolwide Title I funding when 50 percent or more of the students are eligible for free or reduced-priced lunch. Thus, for schools where the free and reduced-priced

lunch information was missing, participation in a "schoolwide" Title I program (i.e., S2TT1 and S2TT1SW) was used as an indicator of whether the free or reduced-priced lunch eligibility was at or above 50 percent (high poverty) or not (low poverty). Approximately 29 percent of the cases with a value for the school poverty variable have been imputed from schoolwide Title I information.

APPENDIX

Standard Error Tables

Table A.1. Standard Errors for Tables 1, 2, 3, 4, Figures A, 1, 2, 3, 4, 5: Percent of kindergarten teachers in various school sectors, by school grade levels, teaching assignment, and teacher demographic characteristics: Fall 1998

School and teacher characteristics	All Teachers	Public	Catholic	Other Private
School sector				
Public	0.95	†	†	†
Catholic	0.43	†	†	†
Other private	1.03	†	†	†
School grade levels				
Prekindergarten/Kindergarten	1.57	1.32	1.55	6.16
Primary school	1.16	1.40	0.81	1.64
Elementary school	1.91	2.23	3.47	3.38
Combined school	1.79	2.00	3.78	5.14
Teaching assignment				
Full-day class	2.30	2.70	3.57	4.76
One half-day class	1.60	1.70	3.42	4.44
Two half-day classes	1.46	1.78	2.73	1.83
Average age				
Age	0.25	0.27	0.89	0.99
Under 30 years	0.91	1.08	3.61	2.95
30 to 39	0.78	0.79	5.44	3.04
40 to 49	1.18	1.27	4.56	3.81
50 to 59	0.96	0.94	3.61	3.54
60 years or over	0.35	0.33	1.69	1.54
Sex				
Female	0.34	0.38	†	1.17
Male	0.34	0.38	†	1.17
Race/ethnicity				
White, non-Hispanic	1.06	1.29	2.40	2.27
Black, non-Hispanic	0.75	0.88	1.24	1.75
Hispanic	0.76	0.92	2.04	0.49
Other non-Hispanic or multiracial	0.61	0.67	0.58	1.87

†Not applicable because based on estimates of either 100 percent or 0 percent.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

Table A.2. Standard errors for Table A, Table 5 and Figure 6: Percent of kindergarten teachers in classrooms with 75 percent or higher concentrations of a racial/ethnic group, by teacher race/ethnicity: Fall 1998

Percent minority classroom enrollment	White, non-Hispanic	Black, non-Hispanic	Hispanic	Other, non-Hispanic or multiracial
75 percent or more minority enrollment	1.59	4.50	5.61	7.62
75 percent or more White enrollment	2.42	1.86	1.98	2.87
75 percent or more Black enrollment	0.63	5.39	1.26	2.64
75 percent or more Hispanic enrollment	0.47	0.96	6.80	1.86

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

Table A.3. Standard errors for Table 6: Percent of kindergarten teachers with less than a bachelor’s degree, by school sector: Fall 1998

School characteristic	Less than a bachelor’s degree
All kindergarten teachers	0.5
School sector	
Public school teachers	0.1
Catholic school teachers	1.8
Other private school teachers	3.4

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

Table A.4. Standard errors for Table 7: Percent of kindergarten teachers according to highest degree earned, by sector, school location, and percent minority classroom enrollment: Fall 1998

School and classroom characteristics	Bachelor's degree	Master's degree	Education specialist/ Doctoral degree
All schools	1.4	1.3	0.6
School sector			
Public	1.6	1.5	0.6
Catholic	4.0	3.6	1.0
Other private	4.3	3.4	1.6
School location			
Large city	2.8	2.8	1.8
Midsize city	3.8	3.3	1.5
Suburbs/large town	1.9	1.9	0.7
Small town	4.3	4.5	1.4
Rural	4.1	3.9	1.6
Percent minority classroom enrollment			
Less than 10 percent	2.8	2.9	1.0
10 to 24 percent	3.0	3.1	1.2
25 to 49 percent	2.7	2.2	1.7
50 to 74 percent	3.6	3.3	2.7
75 percent or more	3.2	2.9	1.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

Table A.5. Standard errors for Figure 8: Percentage distribution of kindergarten teachers with various levels of certification, by school sector: Fall 1998

School characteristic	No certificate	Other certification	Full certification
All kindergarten teachers	0.4	0.9	0.8
School sector			
Public	0.1	0.8	0.8
Catholic	2.9	3.9	4.3
Other private	2.6	3.5	3.3

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

Table A.6. Standard Errors for Table 8: Percent of kindergarten teachers with various levels of certification, by school sector, school location, percent minority classroom enrollment, and years of kindergarten teaching experience: Fall 1998

School and teacher characteristics	Other certification	Full certification
All kindergarten teachers	0.9	0.8
School sector		
Public	0.8	0.8
Catholic	3.9	4.3
Other private	3.5	3.3
School location		
Large city	1.8	2.7
Midsize city	1.6	1.7
Suburbs/large town	1.5	1.4
Small town	2.3	2.9
Rural	3.0	3.1
Percent minority classroom enrollment		
Less than 10 percent	1.6	1.8
10 to 24 percent	2.4	2.5
25 to 49 percent	1.5	1.9
50 to 74 percent	2.3	3.1
75 percent or more	1.9	2.1
Years teaching kindergarten		
Less than 3 years	1.9	2.0
3 to 9 years	1.0	1.0
10 to 19 years	0.9	1.2
20 years or more	1.0	1.2

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

Table A.7. Standard errors for Figure 8 and Table 9: Percent of kindergarten teachers who were certified in elementary and early childhood education, by school sector, school location, percent minority classroom enrollment, and years of kindergarten teaching experience: Fall 1998

School and teacher characteristics	Percent of kindergarten teachers certified in		
	Early childhood education	Elementary education	Neither area of certification
All kindergarten teachers	1.6	1.2	0.6
School sector			
Public schools	1.8	1.1	0.4
Catholic schools	5.2	3.3	2.0
Other private schools	4.4	4.3	3.3
School location			
Large city	4.2	2.5	1.9
Midsize city	3.7	2.2	1.0
Suburbs/large town	2.2	2.0	1.1
Small town	4.5	2.6	2.0
Rural	5.5	4.3	0.6
Percent minority classroom enrollment			
Less than 10 percent	3.4	2.0	1.0
10 to 24 percent	2.9	2.9	1.2
25 to 49 percent	3.1	2.1	1.4
50 to 74 percent	4.4	4.0	1.8
75 percent or more	2.7	2.1	1.1
Years teaching kindergarten			
Less than 3 years	2.4	2.1	1.6
3-9 years	2.3	1.7	0.7
10-19 years	2.6	1.8	1.0
20 years or more	3.3	2.5	1.5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

Table A.8. Standard errors for Table 10: Average years kindergarten teaching experience and percent distribution kindergarten teaching experience, by selected school characteristics and percent minority classroom enrollment: Fall 1998

School characteristics	Average years teaching kindergarten	Percent distribution kindergarten teaching experience			
		Less than 3 years	3 to 9 years	10 to 19 years	20 years or more
All kindergarten teachers	.17	1.2	1.2	0.9	0.7
School sector					
Public	.20	1.1	1.1	1.0	0.8
Catholic	.59	4.0	4.6	4.2	2.7
Other private	.56	4.9	3.4	3.3	1.5
School location					
Large city	.42	3.5	2.5	1.6	1.5
Midsize city	.40	2.4	2.7	1.8	1.5
Suburbs/large town	.27	1.9	1.7	1.5	1.1
Small town	.64	3.4	2.8	2.9	2.2
Rural	.75	4.1	3.6	3.4	2.8
Percent minority classroom enrollment					
Less than 10 percent	.34	2.2	2.2	2.1	1.6
10 to 24 percent	.28	2.5	2.5	2.1	1.3
25 to 49 percent	.41	2.7	2.9	3.1	1.4
50 to 74 percent	.69	5.0	3.6	3.0	2.1
75 percent or more	.32	2.0	1.9	1.4	1.5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), “Teacher Questionnaires,” fall 1998, Restricted-Use Data File.

Table A-9. Standard Errors for Table 11: - Percentage distribution of public school kindergarten teachers, by poverty concentration of the schools, teacher race/ethnicity, school location and percent minority classroom enrollment: Fall 1998

Teacher and school characteristics	Poverty concentration of school ¹	
	Low poverty 0-49 percent	High poverty 50 percent or more
All public school kindergarten teachers	2.3	2.3
Teacher race/ethnicity		
White, non-Hispanic	1.1	1.9
Black, non-Hispanic	0.6	1.6
Hispanic	0.8	1.6
Other, non-Hispanic	0.7	1.0
Location		
Large city	1.8	3.4
Midsize city	2.8	3.3
Suburbs/large town	3.6	5.3
Small town	1.5	1.8
Rural	2.2	4.3
Percent minority classroom enrollment		
Less than 10 percent	2.9	3.7
10 to 24 percent	2.4	1.7
25 to 49 percent	2.0	2.4
50 to 74 percent	1.6	2.2
75 percent or more	1.1	3.6

¹The school's concentration of poverty was based on a composite of free- and reduced-priced lunch and participation in a "schoolwide" Title I program.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), "Teacher Questionnaires," fall 1998, Restricted-Use Data File.

Table A-10. Standard Errors for Table 12: Percent of public school kindergarten teachers with various qualifications, by the poverty concentration of the school: Fall 1998

Teacher background characteristics	Poverty concentration of school ¹	
	Low poverty 0-49%	High poverty 50% or more
Highest level of education		
Bachelor's degree	2.1	2.4
Master's degree	2.0	2.1
Education specialist/ Doctoral degree	1.1	0.8
Certification		
Other certification	1.2	1.0
Full certification	1.2	1.1
Specialization		
Early childhood education	2.5	2.6
Elementary education	1.4	1.9
Neither area of certification	0.5	0.5
Average years experience teaching K	0.2	0.3
Years teaching kindergarten		
Less than 3 years	1.3	1.8
3 to 9 years	1.6	1.8
10 to 19 years	1.4	1.3
20 years or more	1.0	1.4

¹The school's concentration of poverty was based on composite of free- and reduced-priced lunch and participation in a "schoolwide" Title I Program.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), "Teacher Questionnaires," fall 1998, Restricted-Use Data File.