50-State Analysis of the Preparation of Teachers and the Conditions for Teaching

Results from the NCES Schools and Staffing Survey

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Council of Chief State School Officers
The Council of Chief State School Officers (CCSSO) is a nonpartisan, nationwide, nonprofit organization of public officials who head departments of elementary and secondary education in the states, the District of Columbia, the Department of Defense Education Activity, and five U.S. extra-state jurisdictions. CCSSO provides leadership, advocacy, and technical assistance on major educational issues. The Council seeks member consensus on major educational issues and expresses their views to civic and professional organizations, federal agencies, Congress, and the public.

State Education Indicators
The Council is a strong advocate for improving the quality and comparability of assessments and data systems to produce accurate indicators of the progress of our elementary and secondary schools. The CCSSO education indicators project is providing leadership in developing a system of state-by-state indicators of the condition of K–12 education. Indicators activities include collecting and reporting statistical indicators by state, tracking state policy changes, assisting with accountability systems, and conducting analyses of trends in education.

The CCSSO reports on state education policies inform education leaders and educators about the current status and trends in policies across the 50 states that define and shape elementary and secondary education in public schools. The report is part of a continuing biennial series produced by the Council's education indicators project. We report 50-state information on policies regarding teacher and leader preparation and certification, graduation requirements, state content standards, student assessment programs, school time, and student attendance. The work of CCSSO is possible because of the excellent cooperation and coordination by staff in each state department of education as well as by funding from the U.S. Department of Education.

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As part of the CCSSO efforts to report on indicators of education quality in our public schools, we have conducted a new analysis of data from the Schools and Staffing Survey (SASS). This quadrennial survey conducted by the National Center for Education Statistics (NCES) provides representative data at national and state-levels that can address a range of education policy and planning questions. The most recent survey of public school teachers under SASS was completed during the spring of 2004. Survey data from 800 to 1200 teachers per state (sample size varies) provide the basis for the present 50-state analysis and report. NCES designs and selects a sample of elementary and secondary teachers in each state that is representative of the total population of teachers in the state. The complete NCES SASS project for 2004 includes surveys of principals, district leaders, private schools, and school finance. (For survey forms and details on sampling for SASS, see http://nces.ed.gov/, NCES (2007))

The present report provides statistics of 50 states for several key indicators of the conditions of education in our nation's schools. CCSSO previously reported these indicators and we have cited research supporting the relevance and explanatory role of these indicators for achievement of students in schools (see Blank & Langesen, 2005; Blank, et al., 2003).

- Percent of secondary teachers with a college major in assigned teaching field
- Assignment and organization of elementary teachers
- Elementary class time spent on core subjects
- Average class size for secondary courses
- Routes for teacher certification (how current teachers received college credits in teaching methods)

The SASS results provide a unique resource for providing state-by-state statistics on these kinds of indicators. These five indicators were selected for highlighting in the CCSSO report for several reasons—first, there is research that supports the importance and relevance of each indicator, second, comparable data are difficult to find and SASS data provide reliable statistics for all states, and third, CCSSO has received questions about the existence of state-level statistics on these indicators. A reader may want to relate the data to state policies regarding teacher preparation and school and classroom conditions, and CCSSO's biennial report, *Key State Education Policies for PK–12 Education,* can provide 50-state policy information regarding these indicators (CCSSO, 2006, http://www.ccsso.org/publications/).

This new report is being provided as on online document from CCSSO. It can be accessed, downloaded, and copied from our website at http://www.ccsso.org/projects/State_Education_Indicators/.

Secondary Teachers with Major in Field

Teachers that have completed a college degree with a major in the subject area of their teaching assignment are more likely to have the core content knowledge that is critical for teaching and many research studies have shown a positive relationship between teacher preparation and knowledge of their subject to the achievement of students they teach (National Commission on Teaching and America's Future, 1996; Ferguson, 1998; Ingersoll, 1999, 2003; Goldhaber & Brewer, 2000; Mayer, Mullens, & Moore, 2000). One of the core measures of high qualified status of teaching staff is a major in the teacher's assigned teaching field, which is reported by all states annually under the No Child Left Behind Act (McMillen-Seastrom, et al, 2002).

The state statistics in Table 1 and Table 2 show the percentage of secondary level teachers (grades 7–12) in four core subjects that reported that they had completed a major (bachelor's or higher degree) in the field of their main assignment as a teacher.[1]

- **Mathematics Teachers**: Of the four core subjects, the proportion of teachers who had majored in their subject was lowest in mathematics, at 61 percent. Variation across states in the percentage of teachers who had majored in mathematics was fairly wide, ranging from 36 percent in New Mexico to 86 percent in Minnesota. In four states, teachers have significantly lower rates (below 45 percent with a major in field): Georgia, Arizona, Washington, and New Mexico. A total of nine states had less than half of their mathematics teachers holding a major in field. Three states had significantly higher than average rates of teachers who majored in math: Minnesota, North Dakota, and Michigan.

- **Science Teachers**: The national average for science teachers holding a major in a field in the natural sciences was 77 percent. We included in the total any teacher with main assignment in science who reported completing a major in any natural science field (thus, a teacher of earth science who majored in physics would be included as holding a science major). One state had a significantly higher proportion—New York (91 percent), and three had lower rates—Oklahoma, Tennessee, and Ohio (the lowest, at 55 percent).

- **English teachers**: In the U.S. overall, 76 percent of English/language arts teachers had majored in the field while earning their bachelor's (or higher) degree. English teachers were more likely than average to hold an English major in four states: Connecticut, New Jersey, Indiana, and Minnesota. The percentage of teachers with a major in Alaska and Louisiana were below the national average, at about 54–55 percent.

- **Social studies teachers**: About 79 percent of 2003–04 social studies teachers had majored in a social science field. Maryland led the nation at 95 percent, followed by New Jersey at 90 percent. Only one state was below average on this measure, Oklahoma, where 60 percent of social studies teachers had a social science major.

In the fields of mathematics and English Language Arts (ELA), the states with the lowest rates of teachers with a major in the teaching field tended to be in the South and West, while the teachers with the highest rates tended to be in the Midwest and Northeast. There were exceptions, of course, and not all of these differences were significant in both tables. These patterns were less clear with respect to science or social studies.

[1] All the differences described in our analysis have been tested for statistical significance at p=0.05—that is, in no more than 5 out of 100 samples, will a difference of this magnitude occur by chance. Each state's estimate has been tested against the national total, and because these estimates are not independent (the state's values are included in the total), a modified version of the Student's t test formula was used to take this dependence into account. However, no correction for multiple comparisons was done, and had this been done the number of statistically significant differences would be reduced.

Table 1: Mathematics and Science Teachers with Major in Assigned Field, Grades 7–12: 2003–04

State	Mathematics: Percent majored in Mathematics	Mathematics: Standard error	Science: Percent majored in Science	Science: Standard error
Alabama	**74**	7.6	**85**	6.4
Alaska	**68**	8.0	**86**	7.9
Arizona	**42**	6.1	**67**	6.9
Arkansas	**63**	7.3	**62**	9.7
California	**54**	8.1	**84**	5.2
Colorado	**70**	9.8	**78**	8.9
Connecticut	**77**	9.1	**71**	7.7
Delaware	‡	‡	‡	‡
District of Columbia	‡	‡	‡	‡
Florida	**57**	6.2	**83**	7.6
Georgia	**45**	5.6	**73**	11.1
Hawaii	‡	‡	‡	‡
Idaho	**53**	7.7	**74**	7.8
Illinois	**67**	8.7	**85**	7.3
Indiana	**68**	8.0	**87**	4.6
Iowa	**71**	10.1	**81**	6.6
Kansas	**74**	6.4	**78**	9.5
Kentucky	**58**	7.3	**70**	9.7
Louisiana	**46**	5.8	**63**	7.5
Maine	**47**	8.1	**75**	7.4
Maryland	**45**	8.6	**77**	9.9
Massachusetts	**68**	10.6	**84**	6.4
Michigan	**78**	4.7	**74**	7.1
Minnesota	**86**	5.6	**89**	5.3
Mississippi	**62**	8.5	**77**	7.2
Missouri	**49**	7.5	**81**	9.6
Montana	**65**	7.4	**82**	7.8
Nebraska	**77**	8.0	**77**	8.4
Nevada	**48**	9.7	**73**	9.5
New Hampshire	**72**	8.8	**72**	10.7
New Jersey	**67**	7.8	**84**	8.4
New Mexico	**36**	6.9	**61**	9.3
New York	**62**	6.6	**91**	6.3
North Carolina	**63**	7.5	**70**	7.2
North Dakota	**80**	7.2	**71**	7.8
Ohio	**64**	7.1	**55**	5.6
Oklahoma	**58**	5.4	**61**	4.9
Oregon	**68**	7.3	**83**	9.6
Pennsylvania	**66**	5.8	**65**	6.5
Rhode Island	**79**	9.7	‡	‡
South Carolina	**51**	6.5	**82**	7.4
South Dakota	**73**	8.3	**62**	7.9
Tennessee	**56**	7.0	**58**	7.6
Texas	**63**	5.5	**80**	7.5
Utah	**65**	8.2	**77**	7.9
Vermont	‡	‡	**91**	8.1
Virginia	**52**	7.6	**74**	8.4
Washington	**40**	6.1	**77**	6.9
West Virginia	**74**	6.9	**72**	9.0
Wisconsin	**68**	8.6	**76**	7.3
Wyoming	**67**	18.4	**79**	13.7
United States	**61**	1.3	**77**	1.4

Teachers = Public school teachers with main or second assignment in subject in grades 7–12 departmentalized instruction. ‡ Reporting standards not met (too few cases).
SOURCE: NCES, Schools and Staffing Survey, 2003–04
Council of Chief State School Officers, Washington, DC, 2007

Table 2: English/Language Arts and Social Studies Teachers with Major in Assigned Field, Grades 7–12: 2003–04

State	English/Language Arts: Percent majored in English	English/Language Arts: Standard error	Social Studies: Percent majored in Social Studies	Social Studies: Standard error
Alabama	**81**	6.8	**84**	8.8
Alaska	**55**	6.8	**69**	6.2
Arizona	**65**	6.8	**74**	7.4
Arkansas	**79**	5.9	**62**	8.7
California	**73**	5.1	**81**	6.4
Colorado	**86**	5.9	**75**	6.5
Connecticut	**91**	5.8	**88**	7.4
Delaware	‡	‡	‡	‡
District of Columbia	‡	‡	‡	‡
Florida	**72**	5.8	**77**	5.8
Georgia	**77**	6.1	**84**	8.8
Hawaii	**74**	8.0	‡	‡
Idaho	**66**	5.7	**79**	7.3
Illinois	**66**	9.8	**79**	13.1
Indiana	**89**	3.6	**78**	7.3
Iowa	**79**	6.8	**82**	7.0
Kansas	**66**	6.0	**80**	8.1
Kentucky	**73**	9.2	**74**	8.2
Louisiana	**54**	5.3	**66**	7.5
Maine	**73**	7.7	**86**	13.6
Maryland	**71**	8.4	**95**	5.6
Massachusetts	**83**	7.2	**80**	9.3
Michigan	**82**	5.1	**71**	8.2
Minnesota	**86**	4.0	**86**	5.6
Mississippi	**67**	7.1	**75**	6.9
Missouri	**70**	7.5	**71**	7.6
Montana	**76**	7.4	**79**	7.7
Nebraska	**79**	6.4	**87**	6.8
Nevada	**54**	10.3	**70**	12.0
New Hampshire	**84**	8.3	**79**	10.2
New Jersey	**71**	10.7	**90**	6.3
New Mexico	**69**	6.7	**73**	7.9
New York	**84**	7.4	**81**	5.8
North Carolina	**90**	6.2	**77**	8.1
North Dakota	**77**	6.4	**77**	8.2
Ohio	**67**	5.9	**78**	6.3
Oklahoma	**68**	6.7	**60**	6.0
Oregon	**71**	8.5	**88**	7.1
Pennsylvania	**78**	4.8	**77**	6.2
Rhode Island	‡	‡	‡	‡
South Carolina	**74**	7.1	**84**	7.1
South Dakota	**70**	7.0	**74**	8.1
Tennessee	**66**	6.9	**80**	6.5
Texas	**82**	5.5	**73**	5.0
Utah	**86**	4.6	**79**	6.2
Vermont	**84**	9.6	‡	‡
Virginia	**76**	8.9	**86**	10.5
Washington	**72**	7.1	**89**	10.0
West Virginia	**80**	6.5	**82**	8.4
Wisconsin	**85**	6.1	**88**	8.3
Wyoming	**70**	9.6	**74**	21.9
United States	**76**	1.4	**79**	1.2

Teachers = Public school teachers with main or second assignment in subject in grades 7–12 departmentalized instruction. ‡ Reporting standards not met (too few cases).
SOURCE: NCES, Schools and Staffing Survey, 2003–04
Council of Chief State School Officers, Washington, DC, 2007

The **national averages** for teachers with a major in field across these four subjects have not changed substantially in the past decade in three fields. Mathematics has declined over the decade.

	1994	2000	2004
Mathematics	72%	67%	61%
Science	74	75	77
English	78	70	76
Social Studies	80	78	79

Since 1994, the total number of teachers at the secondary level has increased, and in mathematics, the number of teachers has gone up significantly (with a 20% increase in teachers of math). The high demand for teachers and need to hire is one possible factor in the decline in the percentage with a major in math. Currently there are continuing shortages of teachers with strong subject preparation for teaching at the secondary level (U.S. Department of Education, 2003). Another factor affecting the 2004 percentages for teachers with a major in assigned field is a slight change in the SASS survey form—teachers had fewer choices for "major field of study" in 2004 than in 2000 or 1994 surveys, e.g., "mathematics education," "science education," etc. were not listed as major fields of study (see SASS 2003-04 Teacher Questionnaire, p. 12, NCES, 2007).

Assignment and Organization of Elementary Teachers

Table 3 provides a state-by-state picture of organization of elementary (K–6) instruction based on teacher responses concerning how they are assigned. The SASS teacher survey asked teachers in these grades to report the type of classroom in which they teach, and the data by state indicate different approaches to elementary curriculum and teacher assignment.

Elementary school grades K–6 are most often organized into self contained classes (i.e., one teacher is responsible for most or all of the core subjects). The other class types shown are sometimes used alongside one of the main organizing methods, either to teach other subjects or for certain students. For example, for subjects including art, music, foreign language, and physical education, elementary enrichment classes may be used. Pull-out classes typically provide extra help for learners with disabilities, those who are behind their peers, gifted students, and students learning English.

- Slightly over half of teachers of public school grades K–6 nationally taught in self-contained classrooms (54 percent), 18 percent taught departmentalized classes, and 14 percent taught pull-out classes. Elementary enrichment classes occupied 10 percent of these teachers, and team-taught classes accounted for 3 percent.

- California had the highest proportion of K–6 teachers assigned to self-contained classes at 79 percent, and Kentucky and New Jersey had the lowest, at 42 percent. In addition to those two, several states were clustered at the low end between 42–46 percent on this measure: Louisiana, Maryland, Minnesota, Ohio, Oklahoma, South Dakota, and Vermont—though not all of those were significantly different from the national average of 54 percent.

- A few states assigned lower proportions than the average (18 percent) of their K–6 teachers to departmentalized classes, with several in the 10- to 12-percent range: California, Maine, New Hampshire, and Utah, plus the District of Columbia. States that stood out for higher than average K–6 teacher assignments to departments were mostly at about 26–29 percent: Maryland, Oklahoma, South Carolina, and South Dakota.

- Team teaching among K–6th grade teachers is rather rare in nearly all states. States that differ substantially from the average appear to tradeoff between self-contained classes on the one hand and departmentalized or pull-out teaching on the other.

Table 3: Elementary Teachers Class Organization, K–6 Public School Teachers, 2003–04

State	Percent Teaching Departmentalized class	Percent Elem. enrichment class	Percent Self contained Class	Percent Team taught class	Percent Pull out class
Alabama	17	9	54	1	19
Alaska	16	10	57	2	15
Arizona	12	9	64	2	13
Arkansas	19	8	57	1	15
California	10	3	79	1	6
Colorado	19	12	53	3	13
Connecticut	19	16	48	5	12
Delaware	18	11	50	14	7
District of Columbia	11	15	60	3	12
Florida	26	9	54	2	8
Georgia	22	8	51	4	15
Hawaii	13	6	61	1	18
Idaho	15	10	63	1	12
Illinois	10	11	60	2	17
Indiana	14	11	57	4	13
Iowa	20	16	46	1	17
Kansas	18	15	50	1	15
Kentucky	26	14	42	3	16
Louisiana	25	9	44	4	18
Maine	11	15	53	3	18
Maryland	29	13	43	2	13
Massachusetts	13	11	55	5	15
Michigan	18	14	54	2	12
Minnesota	17	11	44	3	25
Mississippi	23	6	52	4	16
Missouri	14	11	52	4	19
Montana	17	14	57	1	12
Nebraska	16	12	53	2	16
Nevada	17	7	56	8	11
New Hampshire	12	17	48	5	18
New Jersey	14	20	42	7	18
New Mexico	17	4	63	2	15
New York	16	11	47	8	17
North Carolina	22	9	53	4	12
North Dakota	15	10	50	2	23
Ohio	23	12	45	3	17
Oklahoma	29	10	46	2	13
Oregon	17	9	60	1	14
Pennsylvania	17	12	49	3	19
Rhode Island	14	17	48	9	12
South Carolina	29	8	51	3	9
South Dakota	26	10	46	4	15
Tennessee	14	10	65	2	9
Texas	24	9	49	4	13
Utah	10	4	76	1	9
Vermont	15	18	43	7	17
Virginia	21	8	51	5	15
Washington	16	14	59	2	9
West Virginia	17	14	50	4	15
Wisconsin	19	12	48	5	16
Wyoming	17	13	49	3	18
United States	18	10	54	3	14

SOURCE: NCES, Schools and Staffing Survey, 2003–04
Council of Chief State School Officers, Washington, DC, 2007

Table 4 provides further details about the role of elementary teachers who are departmentalized or teach enrichment classes. We used SASS data by to state to check the proportion of these kinds of teachers in elementary schools who are assigned to specific subject areas. Overall, small portions (less than one in six teachers) of elementary teachers are focused ***only*** on any one of the four core academic areas.

- In the nation, 13 percent of elementary enrichment or departmentalized teachers at the K–6 level taught English/language arts, 10 percent taught mathematics, 8 percent taught science, and 6 percent taught social studies. Because there are relatively few departmentalized or elementary enrichment teachers, the estimates in Table 8 tend to have large standard errors, and differences are rarely statistically significant. In the typical state, about half of these teachers are in the fields of art and physical education/health.

- Although the percentage of elementary enrichment and departmentalized teachers who taught mathematics ranged from about 1 percent to nearly 20 percent, only one state difference was significantly different from others.

- Maine, Washington, and North Carolina marked the low end of the scale for science enrichment teachers (2 percent each), and no state had a significantly higher proportion than the national average of these teachers.

- In New Hampshire and Wisconsin 4 percent of these teachers taught English/language arts, while at the top of the range 25 percent did so in Louisiana.

Table 4: Elementary Teachers with Mathematics or Science as Main Assignment, K–6 Public School Teachers, 2003–04

State	Percent Departmentalized + Elementary Enrichment classes	Percent by subject assigned				
		Mathematics	Science	English/ Language Arts	Fine and Performing Arts	Physical Education/ Health
Alabama	26	13	5	17	15	22
Alaska	26	6	6	17	27	16
Arizona	21	6	10	14	32	14
Arkansas	27	14	6	16	35	10
California	14	14	12	11	14	25
Colorado	31	10	3	11	28	21
Connecticut	35	5	6	11	28	19
Delaware	29	15	7	20	26	11
District of Columbia	25	13	9	8	24	15
Florida	35	9	11	18	16	15
Georgia	30	12	5	18	20	11
Hawaii	20	11	6	8	10	12
Idaho	25	7	7	9	30	23
Illinois	21	10	5	12	35	13
Indiana	26	9	4	10	31	20
Iowa	36	7	6	7	42	16
Kansas	34	13	4	14	37	20
Kentucky	40	16	12	13	26	13
Louisiana	34	14	3	25	15	18
Maine	26	7	2	10	35	24
Maryland	42	7	10	16	25	11
Massachusetts	24	5	11	6	21	19
Michigan	31	12	7	14	32	19
Minnesota	29	6	3	7	33	23
Mississippi	29	19	12	25	15	9
Missouri	25	8	13	5	33	20
Montana	31	12	2	5	37	18
Nebraska	29	7	4	7	41	20
Nevada	24	17	9	14	29	7
New Hampshire	29	6	4	4	45	21
New Jersey	34	7	6	13	22	20
New Mexico	21	10	1	13	11	16
New York	28	6	12	10	23	21
North Carolina	31	16	2	10	26	22
North Dakota	25	1	4	6	44	26
Ohio	35	7	11	15	28	18
Oklahoma	39	11	12	13	22	14
Oregon	25	13	9	9	37	16
Pennsylvania	29	9	6	10	31	17
Rhode Island	31	10	6	6	30	25
South Carolina	37	17	7	18	20	10
South Dakota	36	6	7	13	30	21
Tennessee	24	5	12	25	18	14
Texas	34	13	8	17	11	17
Utah	14	9	10	13	20	13
Vermont	33	8	7	8	35	27
Virginia	29	7	9	18	23	18
Washington	30	7	2	8	28	26
West Virginia	31	15	7	11	36	12
Wisconsin	32	7	4	4	38	22
Wyoming	30	9	4	8	37	23
United States	29	10	8	13	24	18

SOURCE: NCES, Schools and Staffing Survey, 2003–04
Council of Chief State School Officers, Washington, DC, 2007

Elementary Class Time Spent on Core Academic Subjects

One of the elementary level indicators CCSSO has tracked over time by state is the class time spent on several core subjects. We have divided the class time analysis according to teachers of grades 1–3 and teachers of grades 4–6. On average, teachers in both elementary levels spent over 21 hours a week in instruction on these core subjects combined.

- On average, teachers in **grades 1–3** classes spent 11.9 hours a week teaching English/language arts (including reading); reading by itself accounted for 7.7 hours. Arithmetic/mathematics instruction was taught an average of 5.3 hours of class time, while social studies/history was taught for 2.3 hours, and science for 2.2 hours.

- On average, teachers in **grades 4–6** (see Table 5) classes spent 10.0 hours a week teaching English/language arts (including reading); reading by itself accounted for 6 hours. Arithmetic/mathematics instruction was taught an average of 5.3 hours of class time, while social studies/history was taught for 3.0 hours, and science for 2.8 hours.

- Thus, in the higher grades about one half hour more per week is spent on science and social studies, although almost half the time in the average 21 hour instructional week in the higher grades is spent on English/language arts.

- In general, few states differed significantly from the national average on the amount of time spent per week on core subjects. Although the differences across states in hours per week do not appear large, they sum to much more substantial differences over the course of a school year. For example, a difference of two-tenths of an hour per week on science adds to 8 hours over the course of school year (or, a month of science instruction).

Grade 4–6 average class time 1994 to 2004 (hours per week)

	1994	2004
Arithmetic/Mathematics	5.1	5.3
Language Arts & Reading	9.3	10.0
Social Studies	3.8	3.0
Science	3.5	2.8

Since 1994, there has been some change in the overall national averages for time on teaching the core subjects. More time is now spent on language arts and reading, and less on social studies and science.

Table 5: Class Time on Core Academic Subjects, Average Hours Per Week Grades 4–6 Public School Teachers, 2003–04

State	English/Reading Language Arts	Reading alone	Arithmetic/ Mathematics	Social Studies/ History	Science
Alabama	12	8	5	4	3
Alaska	10	5	5	3	3
Arizona	11	7	5	2	2
Arkansas	11	6	5	3	3
California	11	7	5	3	2
Colorado	11	7	6	3	2
Connecticut	11	7	6	3	2
Delaware	10	6	6	3	4
District of Columbia	13	8	6	3	3
Florida	9	6	5	3	3
Georgia	9	5	5	3	3
Hawaii	9	5	5	3	3
Idaho	10	6	5	3	3
Illinois	10	6	5	3	3
Indiana	11	6	5	3	3
Iowa	10	7	6	3	3
Kansas	10	5	5	3	2
Kentucky	‡	‡	‡	‡	‡
Louisiana	9	6	5	3	4
Maine	10	6	5	3	2
Maryland	‡	‡	‡	‡	‡
Massachusetts	9	5	6	2	3
Michigan	11	6	5	3	3
Minnesota	10	6	5	3	2
Mississippi	11	6	6	3	2
Missouri	10	6	5	4	3
Montana	11	6	5	3	3
Nebraska	11	6	5	3	3
Nevada	10	6	6	2	2
New Hampshire	10	5	6	3	3
New Jersey	10	6	5	2	3
New Mexico	12	7	5	3	3
New York	9	5	5	4	3
North Carolina	9	5	7	3	2
North Dakota	9	6	5	4	3
Ohio	9	6	5	3	3
Oklahoma	9	6	5	3	3
Oregon	9	5	5	3	2
Pennsylvania	9	6	6	3	3
Rhode Island	11	7	5	3	2
South Carolina	‡	‡	‡	‡	‡
South Dakota	10	6	5	3	3
Tennessee	10	6	5	4	3
Texas	10	6	5	3	5
Utah	12	7	5	3	2
Vermont	9	5	5	3	3
Virginia	10	6	5	4	3
Washington	10	6	6	3	2
West Virginia	11	6	5	3	4
Wisconsin	9	5	5	3	3
Wyoming	11	6	6	3	3
United States	**10**	**6**	**5**	**3**	**3**

Rounds to zero.
NOTE: Includes teachers who reported spending no time teaching these subjects.
SOURCE: NCES, Schools and Staffing Survey, 2003–04
Council of Chief State School Officers, Washington, DC, 2007

Average Class Size for Secondary Level Courses

Among grades 7–12 public school teachers who taught in departments (the norm for these grades) and whose main assignment was in a core academic subject, the average class sizes at the national level varied little by subject—from 24 students for mathematics and English/language arts to 27 students for social studies (see Table 6).

- In nearly all states that exhibited any differences from the national average, class sizes were consistently above or below the average across these core subjects. (Most students were required to take courses in each of these subjects during their time in most of these grades, so this is not surprising.) However, in only some of these states were differences statistically significant for each subject.

- Three states, California, Nevada, and Utah, had larger classes across the board than the national average, while five states had smaller classes in three or four of the subjects: Maine, Mississippi, Montana, North Dakota, and Texas. (Vermont could be added to the latter group because it had smaller classes for science and English, and these were the only two subjects that had large enough samples of teachers to estimate class size.) Nevada provided the largest class size in science classes, at 33 students, while at the other end of the range two states had average class sizes of 18 students (mathematics in Maine, and English in North Dakota).

Table 6: Average Class Size, 7–12 Public School Teachers by Main Assignment, 2003–04

State	Mathematics	Science	Social Science	English/ Language Arts
Alabama	**23**	**26**	**27**	**22**
Alaska	**23**	**24**	**26**	**22**
Arizona	**26**	**27**	**30**	**27**
Arkansas	**21**	**27**	**23**	**24**
California	**29**	**31**	**32**	**29**
Colorado	**23**	**25**	**27**	**24**
Connecticut	**24**	**22**	**26**	**21**
Delaware	‡	‡	‡	‡
District of Columbia	‡	‡	‡	‡
Florida	**26**	**31**	**30**	**25**
Georgia	**24**	**33**	**25**	**28**
Hawaii	‡	‡	‡	**26**
Idaho	**24**	**26**	**27**	**23**
Illinois	**24**	**23**	**28**	**26**
Indiana	**24**	**25**	**26**	**24**
Iowa	**21**	**24**	**28**	**23**
Kansas	**23**	**23**	**25**	**21**
Kentucky	**24**	**25**	**26**	**24**
Louisiana	**22**	**25**	**26**	**24**
Maine	**18**	**20**	**22**	**19**
Maryland	**28**	**27**	**27**	**26**
Massachusetts	**22**	**21**	**24**	**23**
Michigan	**25**	**28**	**29**	**27**
Minnesota	**25**	**25**	**26**	**27**
Mississippi	**20**	**26**	**23**	**21**
Missouri	**21**	**25**	**24**	**21**
Montana	**18**	**21**	**20**	**21**
Nebraska	**21**	**20**	**24**	**21**
Nevada	**29**	**33**	**32**	**29**
New Hampshire	**22**	**25**	**23**	**21**
New Jersey	**22**	**23**	**26**	**25**
New Mexico	**24**	**25**	**29**	**24**
New York	**23**	**22**	**25**	**22**
North Carolina	**25**	**24**	**35**	**22**
North Dakota	**19**	**19**	**22**	**18**
Ohio	**22**	**29**	**25**	**22**
Oklahoma	**20**	**24**	**25**	**24**
Oregon	**31**	**25**	**30**	**27**
Pennsylvania	**24**	**24**	**24**	**23**
Rhode Island	**22**	‡	‡	‡
South Carolina	**24**	**26**	**24**	**23**
South Dakota	**21**	**21**	**25**	**21**
Tennessee	**25**	**25**	**29**	**25**
Texas	**21**	**24**	**23**	**21**
Utah	**28**	**27**	**34**	**31**
Vermont	‡	**19**	‡	**20**
Virginia	**23**	**25**	**23**	**20**
Washington	**26**	**28**	**32**	**27**
West Virginia	**23**	**23**	**26**	**24**
Wisconsin	**24**	**25**	**30**	**24**
Wyoming	**22**	**24**	**25**	**21**
United States	**24**	**26**	**27**	**24**

‡ Reporting standards not met (too few cases).
SOURCE: NCES, Schools and Staffing Survey, 2003–04
Council of Chief State School Officers, Washington, DC, 2007

Routes for Teacher Certification

One of the questions regarding public education often raised today is the degree to which teacher preparation is improving and changing. One approach to trying to advance the supply of prepared teachers has been to offer alternate programs for certification. The SASS 2004 teacher survey did include questions on how teachers received their coursework on teaching methods or strategies which is typically a key stage in obtaining certification. These data help us to understand the ways that teachers now obtain their certification, and what impact alternate programs for teacher certification are having on the overall supply of teachers for our schools.

Table 7 reports the percentage of grade 7–12 teachers that completed their coursework in teaching methods for certification by different routes.

- As of 2004, public secondary level teachers most often took courses on teaching methods/strategies as part of their bachelor's degree program (48 percent), far outpacing the next most widely used method, master's degree programs (19 percent). About 12 percent of the teachers took individual courses on the topic, 9 percent studied teaching methods in a 5th year program of study, and 8 percent participated in an alternative teacher education program.

- State-level averages varied widely for this indicator. While nearly half of the secondary-level teachers in the 2004 SASS survey studied teaching methods in their bachelor's degree coursework, only 10 percent in California did so, compared with 71 percent of Texas teachers at the upper end. Master's degree programs that provided 19 percent of teachers nationally with such instruction were the method used by 43 percent of Oregon teachers and 8 percent of teachers in three states plus DC (Idaho, South Dakota, and Texas).

- Alternative teacher training programs provided 8 percent of teachers nationally with methods instruction, but alternative programs were the source for 25 percent of DC teachers, and 23 percent of Mississippi teachers, but less than 1 percent of teachers in Iowa and Wyoming.

Table 7: Routes for Teacher Certification — How Teachers Received Credits in Teaching Methods or Strategies, 7–12 Teachers with Main Assignment in Math, English, Social Studies, Science, 2003–04

State	An alternative program	BA/BS degree granting program	5th year program (no MA/MS)	MA/MS degree granting program	Individual courses (no degree program)	Other
Alabama	7	62	1	24	6	1
Alaska	3	41	11	22	20	4
Arizona	13	51	8	16	8	5
Arkansas	8	60	2	14	12	4
California	7	10	63	12	6	2
Colorado	9	40	10	19	17	5
Connecticut	5	43	10	29	10	3
Delaware	10	57	1	20	9	2
District of Columbia	25	31	10	8	19	8
Florida	14	40	2	21	20	3
Georgia	5	53	5	17	15	5
Hawaii	5	21	33	18	18	6
Idaho	3	51	10	8	24	4
Illinois	4	53	1	22	17	3
Indiana	2	64	2	20	7	6
Iowa	1	57	1	13	22	6
Kansas	3	59	3	13	17	5
Kentucky	4	62	4	22	3	5
Louisiana	17	67	1	9	4	3
Maine	6	44	4	18	22	6
Maryland	6	46	4	26	14	4
Massachusetts	5	44	3	30	13	6
Michigan	4	62	5	19	7	2
Minnesota	2	53	8	22	11	3
Mississippi	23	54	2	13	7	3
Missouri	6	58	3	20	8	5
Montana	4	57	6	9	20	4
Nebraska	4	57	4	17	14	5
Nevada	5	52	13	17	10	3
New Hampshire	10	42	6	21	16	4
New Jersey	9	56	2	22	7	4
New Mexico	7	49	4	19	17	5
New York	10	42	1	31	10	6
North Carolina	14	53	4	15	9	6
North Dakota	2	55	0	12	26	4
Ohio	5	58	5	18	10	4
Oklahoma	5	71	2	12	8	2
Oregon	2	24	16	43	10	4
Pennsylvania	3	47	4	23	18	5
Rhode Island	6	46	5	16	22	6
South Carolina	7	46	1	22	21	2
South Dakota	4	60	3	8	18	6
Tennessee	6	56	2	26	8	3
Texas	22	54	4	8	9	5
Utah	3	56	10	14	11	7
Vermont	3	47	6	26	14	3
Virginia	6	46	5	22	19	3
Washington	4	42	17	21	11	5
West Virginia	3	56	0	17	20	4
Wisconsin	3	61	4	13	15	5
Wyoming	1	64	4	12	17	2
United States	8	48	9	19	12	4

SOURCE: NCES, Schools and Staffing Survey, 2003–04
Council of Chief State School Officers, Washington, DC, 2007

Conclusions

The analysis of SASS data by state provides useful indicators of teacher preparation and conditions for teaching across the 50 states. Change in demographics of education in the 1990s and increased demand for well prepared teachers at the secondary level, especially in subjects such as mathematics, has made the issue of ensuring qualified teaches in each classroom even more pressing for states and school districts. The data show that in all four academic subjects, the rate of highly qualified teachers did not improve in the majority of states during the past decade, and currently only about two-thirds of secondary teachers in math and science would meet the current NCLB criteria of highly qualified.

With the challenge under current NCLB law of providing highly qualified teachers in each classroom, the analysis indicates that most states will need to take significant policy actions to meet the requirements. States do have flexibility under NCLB to propose alternate definitions of highly qualified teachers that would provide greater latitude to include teachers as qualified that do not meet the specific criteria analyzed here, such as major in field. As states report their state-specific data based on their criteria, the state-level indicators based on SASS data provide a useful comparative metric for states to track teacher preparation and other state-level indicators of conditions for teaching.

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