IES Institute of Education Sciences

Qualifications of Public School Mathematics and Computer Science Teachers in 2017–18

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This Data Point examines the education and certification qualifications of public school mathematics and computer science teachers in the United States before COVID-19. It uses data from the public school teacher data file of the 2017–18 National Teacher and Principal Survey (NTPS). This is a national sample survey of public and private K-12 schools, principals, and teachers in the 50 states and the District of Columbia. State-level estimates can also be produced for public schools, principals, and teachers.

Among public school mathematics and computer science teachers at the high school level in 2017–18,[1] 58 percent had both a degree and teaching certificate[2] in this field (**FIGURE 1**). Ten percent had neither. Teachers had higher certification rates (82 percent) than rates of holding degrees (67 percent).[3]

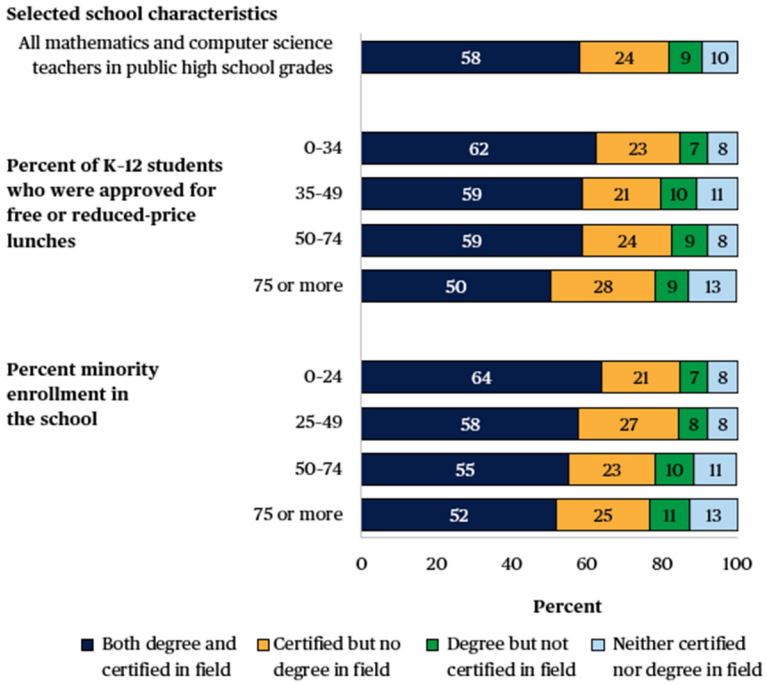
Among public school mathematics and computer science teachers at the middle school level in 2017–18,[4] about a quarter (24 percent) had both a degree and teaching certificate in this field (**FIGURE 2**). Thirty-five percent had neither. Teachers had higher certification rates (60 percent) than rates of holding degrees (29 percent).

Do qualifications of public school mathematics and computer science teachers differ by the percent of students at the school approved for free or reduced-price lunches?

At the high school level, roughly 60 percent (59–62 percent) of teachers in schools with 0–74 percent of students approved for free or reduced-price lunch had both a degree and certificate in their field (**FIGURE 1**). In schools where at least three out of four students (75 percent or more) were approved, only 50 percent of teachers had both.

In middle schools with less than 50 percent of students approved for

FIGURE 1. Qualifications of mathematics and computer science teachers in public high school grades: Percentage of teachers who reported having a degree and/or certification in that field, by selected school characteristics: 2017–18



NOTE: Includes public school teachers who taught departmentalized classes to students in any of grades 10–12 or grade 9 and no grade lower, and whose main teaching assignment was mathematics or computer science. Degrees in main assignment are defined as bachelor's level or higher with a first or second major in mathematics, computer science, engineering, or physics. Teaching certificates that meet the following criteria are defined as being in field: (1) regular or standard certificate, advanced professional certificate, or probationary certificate issued or recognized by the state; (2) applies to at least one of grades 9–12; and (3) applies to at least one content area of mathematics, computer science, or physics. Although rounded numbers are displayed, the figures are based on unrounded data. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Teacher and Principal Survey (NTPS), "Public School Teacher Data File," 2017–18.

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free or reduced-price lunch, a higher percentage of teachers had both a degree and certificate than in schools with 50–74 percent approved (28 and 31 percent compared with 19 percent) (**FIGURE 2**).

About a quarter of teachers in middle schools with 0–34 or 35–49 percent of students approved for free or reduced-price lunch had neither a degree nor a certificate in their field (28 and 26 percent, respectively). In schools with a higher percentage of students approved (50–74 percent or 75 percent or more), about 4 out of 10 teachers did not have either item (39 and 41 percent, respectively).

Do qualifications of public school mathematics and computer science teachers differ by the percent minority enrollment in the school?

At the high school level, almost two-thirds (64 percent) of teachers in schools with minority enrollment of 0–24 percent had both a degree and certificate in their field compared to a little over half for teachers in schools with minority enrollment of 50–74 percent and 75 percent or more (55 and 52 percent, respectively) (**FIGURE 1**).

About a third (32 percent) of teachers at middle schools with 0–24 percent minority enrollment had both a degree and certificate, compared with 21 and 15 percent of teachers in schools with 25–49 and 50–74 percent minority enrollment (**FIGURE 2**).

A higher percentage of teachers at middle schools with 50 percent or more minority enrollment had neither a degree nor certificate than teachers at schools with 25–49 percent minority enrollment (38 and 40 percent compared with 28 percent).

Endnotes

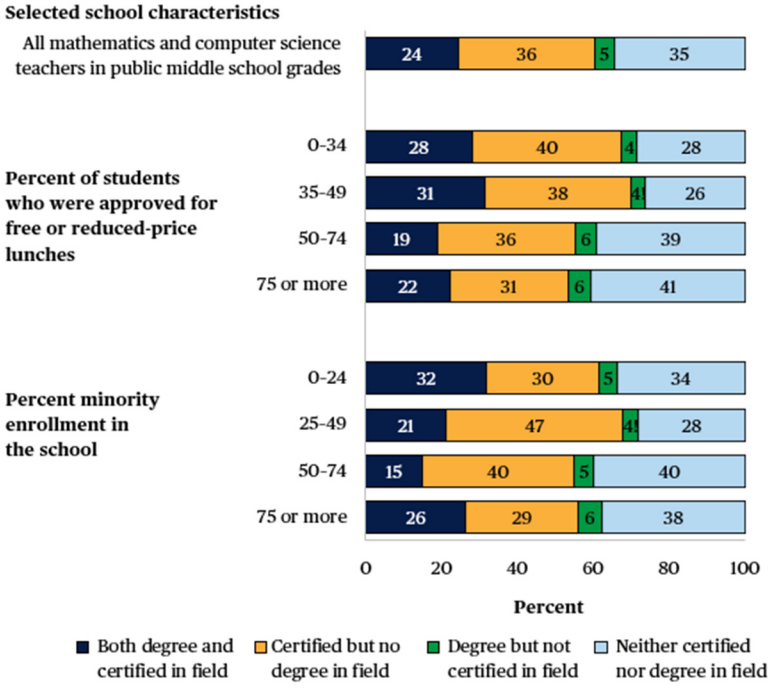
[1] Includes public school teachers who taught departmentalized classes to students in any of grades 10–12 or grade 9 and no grade lower, and whose main teaching assignment was mathematics or computer science. Mathematics and computer science teachers are reported together as part of all subjects listed under the NTPS mathematics header for main teaching assignments. This grouping maintains comparability with that used in the 2015 report on this topic: Hill, J., and Stearns, C. (2015). *Education and Certification Qualifications of Departmentalized Public High School-Level Teachers of Selected Subjects: Evidence From the 2011-12 Schools and Staffing Survey* (NCES 2015-814). https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2015814.

[2] For this report, degrees are defined as bachelor's level or higher. A teaching certificate is defined as a license or certificate awarded to teachers by the state to teach in a public school. For the comparison of teaching fields to the degree and certification fields, the criteria for in-field mathematics majors and certification include the mathematics-oriented science subjects of engineering and physics for major degree field, and physics for certification area (engineering is not an option in the NTPS survey for certification).

[3] The percentage certified is the sum of teachers with both a degree and certificate (58 percent) and those certified but no degree (24 percent). The percentage with a degree is the sum of teachers with both a degree and certificate (58 percent) and those with a degree but not certified (9 percent).

[4] Includes public school teachers who taught departmentalized or single-subject classes to students in any of grades 5–8 and no grade lower than 5 or higher than 9, and whose main teaching assignment was mathematics or computer science.

FIGURE 2. Qualifications of mathematics and computer science teachers in public middle school grades: Percentage of teachers who reported having a degree and/or certification in that field, by selected school characteristics: 2017–18



! Interpret data with caution. The coefficient of variation (CV) for this estimate is between 30 percent and 50 percent.

NOTE: Includes public school teachers who taught departmentalized or single-subject classes to students in any of grades 5–8 and no grade lower than 5 or higher than 9, and whose main teaching assignment was mathematics or computer science. Degrees in main assignment are defined as bachelor's level or higher with a first or second major in mathematics, computer science, engineering, or physics. Teaching certificates that meet the following criteria are defined as being in field: (1) regular or standard certificate, advanced professional certificate, or probationary certificate issued or recognized by the state; (2) applies to at least one of grades 6–8; and (3) applies to at least one content area of mathematics, computer science, or physics. Although rounded numbers are displayed, the figures are based on unrounded data. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Teacher and Principal Survey (NTPS), "Public School Teacher Data File," 2017–18.

The National Center for Education Statistics (NCES) Data Point presents information on education topics of current interest. It was authored by Lucinda Gray, Soheyla Taie, and Laurie Lewis of Westat. Estimates based on samples are subject to sampling variability, and apparent differences may not be statistically significant. All stated differences are statistically significant at the .05 level, with no adjustments for multiple comparisons. Selected findings do not include every statistically significant comparison. In NCES surveys, efforts are made to minimize the effects of nonsampling errors such as item nonresponse, measurement error, data processing error, or other systematic error.