Professional Sense-Makers: Instructional Specialists in Contemporary Schooling

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This brief documents the expansion of instructional specialist staffing in U.S. public school districts. We use data from the National Center of Education Statistics' annual Common Core of Data to chart staffing trends in public school districts between 1997–1998 and 2012–2013. The number of instructional specialists per 1,000 U.S students doubled during that period, and the proportion of districts employing no specialists declined from nearly 20% to 7%. We suggest that specialists are poised to play a pivotal "professional sense-making" role as schools work to implement new instructional standards in the classroom.

Keywords: administration; demography; educational policy; longitudinal studies; teacher education/development

The future is uncertain for the Common Core State Standards (CCSS) as they move from the boardrooms in which they were formulated to the classrooms in which they must be implemented. Like other standards-based instructional reforms, the Common Core is an attempt to influence the behavior of actors who retain considerable discretion over their professional activities and who may find change difficult—classroom teachers (Spillane, 2009). To implement instructional standards, educators must make sense of standards, think reflexively about their own practice, and develop and use new instructional strategies that align with the standards (Coburn, 2004, 2005). As this sense-making process unfolds in classrooms across the country, thousands of teachers are currently determining whether and how the Common Core will change public schooling in the United States.

Instructional specialists—district-level employees who coordinate textbook adoptions, develop curricula, and provide professional development and instructional coaching for teachers—play an important intermediary role in this sense-making process. Typically veteran teachers with considerable expertise in a particular content or instructional domain (i.e., primary English language arts, secondary mathematics, second-language acquisition), specialists are street-level bureaucrats (Lipsky, 1983) who help construct standards-based educational policy as they work with teachers to bring standards to the classroom. Instructional specialists actively shape and reshape standards as they facilitate their interpretation and help teachers develop new standards-aligned classroom strategies (Coburn & Woulfin, 2012).

Recent research on Common Core implementation suggests that specialists play an important role in bringing Common Core standards into classroom practice (cf. McLaughlin, Glaab, & Carrasco, 2014; Porter, Fusarelli, & Fusarelli, 2015; Udesky, 2015). Over the past 2 years, when we asked instructional specialists in Southern California to describe their professional role, nearly all invoked the Common Core. One specialist told us, "My job is to become an expert in the Common Core, or at least to try to become an expert"; others discussed identifying Common Core–aligned curricula, preparing teachers to take the standards into the classroom, developing new lessons, and helping parents and community members understand the standards. (See the appendix for details on these qualitative data.)

Given their role in translating standards to the classroom, it is notable that the ranks of instructional specialists have grown during the era of standards-based educational policy. Table 1 reports trends in instructional specialist staffing for U.S. public school districts, as reported in the National Center of Education Statistics' (NCES) annual Common Core of Data (CCD). In 1997–1998, the average U.S. public school student was enrolled in a district that employed approximately 0.7 instructional specialists for every 1,000 students, and nearly 20% of U.S. students enrolled in a district that employed no instructional specialists. In the intervening 15 years, the rate of instructional specialist staffing rate more than doubled, to 1.41 specialists per 1,000 students. By 2012–2013, just 7% of U.S. students were enrolled in

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Table 1
Mean Staffing, Expenditures, and Demographic Data for U.S. Public School Districts, 1997–1998 to 2012–2013 School Years

Variable	1998	2003	2008	2013	Change, 1998–2013
Specialists per 1,000 students	0.68	0.85	1.17	1.41	107%
Proportion of students in districts with no specialists	0.19	0.13	0.07	0.07	–63%
Teachers per 1,000 students	58.06	60.54	62.76	60.56	4%
Administrators per 1,000 students	2.78	3.39	3.12	3.35	21%
Expenditures (inflation adjusted)	10,142	11,705	12,839	13,916[a]	37%
% African American students	0.17	0.17	0.16	0.15	–12%
% Hispanic students	0.15	0.19	0.22	0.26	73%
% Asian students	0.04	0.04	0.05	0.05	25%
% White students	0.62	0.59	0.55	0.51	–18%
% Free/reduced-price lunch students	—	0.40	0.43	0.52	30%[b]
% English language learner students	—	0.10	0.07	0.10	0%[b]
Mean enrollment	47,407	50,865	47,177	44,438	–6%
n (districts)	10,723	11,075	10,554	9,980	

Source. Public releases of National Center for Education Statistics Common Core of Data (CCD).
Note. All estimates are weighted by districts' total student enrollment. Estimates exclude districts that failed to report data in CCD district surveys in 3 or more years during the time series as well as all districts in Alaska, New Hampshire, and Virginia, which consistently reported out-of-range values for staffing data.
[a]Data from 2011–2012, the most recent year for which expenditures are currently available in CCD public release data.
[b]2003:2013 ratio, because data for free/reduced-price lunch and English language learners are not available in 1998, and both variables have large degrees of missing data in 1999 and 2000.

districts that employed no instructional specialists. This growth in instructional specialist staffing occurred in a period in which other aspects of school district staffing remained relatively constant. As Table 1 indicates, the number of teachers per 1,000 students in U.S. public schools grew by less than 5% during this period, whereas the number of administrators per 1,000 students in U.S. public schools grew by approximately 20%.[1]

Instructional specialists are also unevenly distributed. Figure 1 represents the distribution of instructional specialist staffing for U.S. public school districts in each of the past 15 years, weighted by student enrollment. It demonstrates that the occupation's growth has been driven in particular by districts that employ a large number of specialists. As the dark line at the center of the boxes illustrates, the median ratio of specialists to 1,000 students grew over the study period by approximately 60% (from 0.52 to 0.82). More striking, however, is the growth in instructional specialist staffing at the top of the distribution. At the 75th percentile, the specialist ratio doubled to nearly 2 per 1,000 students; at the 95th percentile, this ratio increased to nearly 5.

Supplementary analyses, reported in the appendix, indicate that instructional specialist staffing has grown particularly rapidly in high-minority and high-poverty districts. Today, districts with large proportions of Black and Hispanic students as well as districts with large proportions of students who qualify for free and reduced-price lunch are overrepresented at the top of the instructional specialist distribution. State policy also plays a role. Although instructional specialist staffing increased between 1998 and 2013 in all but two U.S. states for which longitudinal data are available, both the level of staffing and the ratio of change varies at the state level.[2] California, for example, appropriated generous funds to districts to facilitate CCSS implementation in 2010. The state now leads the nation in instructional specialist staffing, with more than 3 times the national average.

These recent trends raise important questions about the development of the instructional specialist role and what it will mean for the future of American public education. We highlight two implications for future research. First, although specialists make up a relatively small portion of the overall educational workforce, there is reason to believe that this emerging occupation may play an outsized role in the how standards-based policies are enacted in the classroom. In other contexts such as antidiscrimination law, occupational groups have played a central role in determining how policies are enacted (Dobbin, 2009).[3] This implies the need for close scrutiny of instructional specialists' work. Second, the consequences of the emerging instructional specialist role are likely to be most pronounced in high-need districts where expansion has been the greatest. These districts, which were disproportionately influenced by accountability-based educational policies over the past decade, are likely to be disproportionately influenced by standards-based reforms in the coming decade. Tracking the development of the instructional specialist's role and its implications for educational equity will be essential as American schools move into the Common Core era.

Methodological Appendix

This paper draws upon publicly available district-level data from the CCD, a program of the U.S. Department of Education's NCES. The NCES collects comprehensive demographic, enrollment, staffing, and financial data from nearly 100,000 public elementary and secondary schools and about 18,000 public

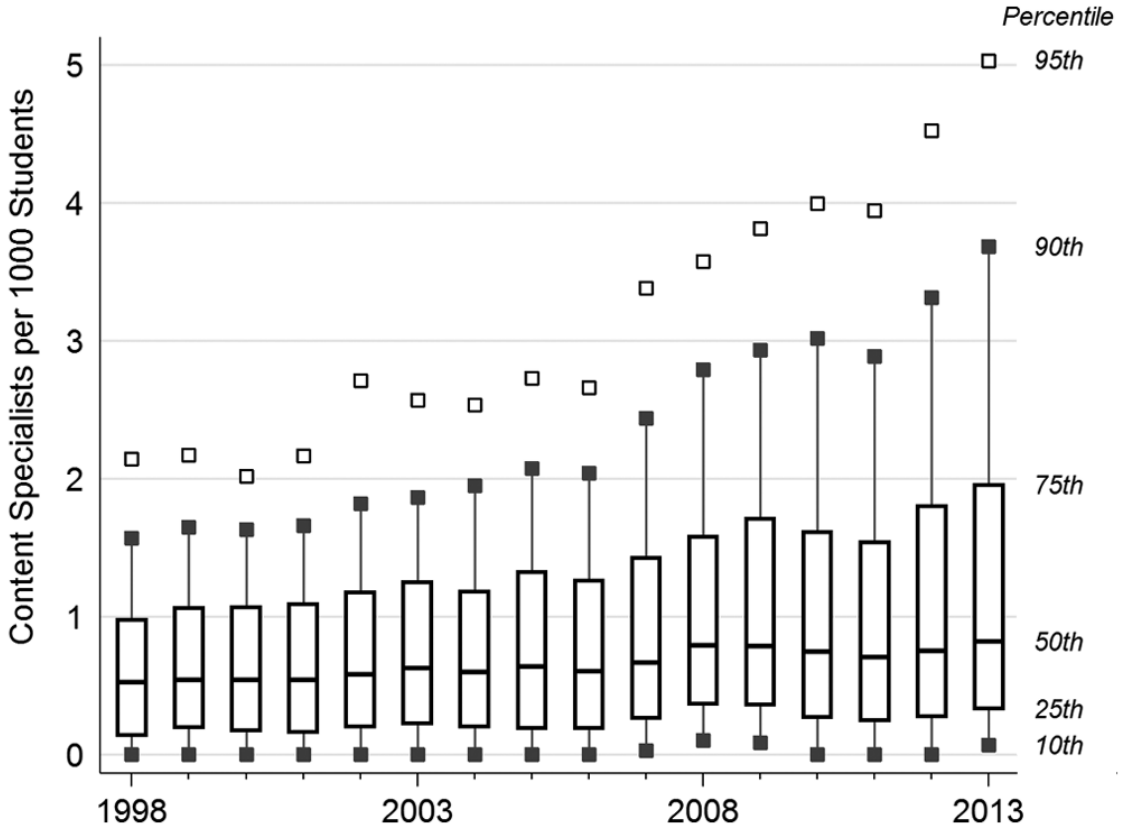

FIGURE 1. *The distribution of instructional specialist staffing for U.S. public school districts, 1997–1998 to 2012–2013 school years*
Source: Public releases of National Center of Education Statistics Common Core of Data (CCD). All estimates are weighted districts' total student enrollment. Estimates exclude districts that failed to report data in CCD district surveys in 3 or more years during the time series as well as all districts in Alaska, New Hampshire, and Virginia, which consistently reported out-of-range values for staffing data.

school districts in the 50 U.S. states, the District of Columbia, and other U.S. territories. Our analyses utilize the district-level data from 47 U.S. states and the District of Columbia between the academic years of 1997–1998 and 2012–2013.[4] Our analyses also exclude districts that are missing staffing data and/or basic demographic data as well as districts that failed to provide data in 3 or more years of the annual CCD survey. District-level fiscal data are currently available up to the 2010–2011 academic year; all other data were available for the full time span.

Our analyses focus on staffing reports obtained from annual CCD district surveys. This survey instrument asks district officials to submit data on their instructional as well as support services staffing. Under the rubric of instructional staffing, the survey collects data on the number of teachers, teachers' aids, and instructional specialists. Separately, the survey collects data on the number of guidance counselors, librarians, and other support services staff employed by districts. (Data and survey forms available at http://nces.ed.gov/ccd/f33agency.asp.) The NCES defines an instructional specialist as

> staff supervising instructional programs at the school district or sub-district level, including supervisors of educational television staff; coordinators and supervisors of audiovisual services; curriculum coordinators and in-service training staff; Title I coordinators and home economics supervisors; and supervisory staff engaged in the development of computer-assisted instruction. School-based department chairpersons are excluded.[5]

The survey instructs districts to report instructional specialists by percentage of a 40-hr workweek, so an individual serving as a full-time instructional specialist would be entered as one staffing position, whereas someone splitting duties evenly as a teacher and instructional specialist would be entered as 0.5 in both the specialist and teacher categories. The CCD data count instructional specialists as a distinct category from district administrators.

On the basis of these staffing reports, we calculate measures of the number of instructional specialists, teachers, and administrators per 1,000 students enrolled in each participating district.[6] We also draw upon district reports of total district expenditures,[7] the proportion of students who qualify for free or reduced-price lunch as a proxy for student socioeconomic composition, and the proportion of students who are English language learners. All analyses weight districts by their enrollment, such that districts that enroll a large number of students contribute proportionately more to estimates of staffing trends. In addition to reporting trends in the mean, we calculate quantiles of the distribution of instructional specialists for the enrollment-weighted sample of U.S. public school districts in year, focusing on the 10th, 25th, 50th, 75th, 90th, and 95th percentiles.

Although not reported in the manuscript, we also estimate supplementary analyses that investigate change over time in

instructional specialist staffing after controlling for district size, demographics, and state fixed effects. In Table A1 in the appendix, we report the results of two random-effects regression models. The first takes the form

$$Y_{ij} = \beta_1 + \alpha_j + \beta_2 \text{Race}_{ij} + \beta_3 \text{Poverty}_{ij} + \beta_4 \text{Enroll}_{ij} + \beta_5 \text{Expend}_{ij-1} + U_i + \varepsilon_{ij},$$

in which Y_{ij} is the number of instructional specialists a district i employs per 1,000 students in year j, α_j is a matrix of indicator variables representing each of the years in the sample period, Race_{ij} is a standardized measure of the proportion of student in district i who were Black or Hispanic in year j, Poverty_{ij} is a standardized measure of the proportion of students in district i who qualify for free or reduced-price lunch in year j, Enroll_{ij} is a standardized measure of the total enrollment in district i in year j, Expend_{ij-1} is a standardized and inflation-adjusted measure of district i's total reported expenditures in year j–1, U_i is a district-level random-effects term, and ε_{ij} is an error term.

Model 1 in Table A1 suggests that districts that enroll larger minority populations, those that enroll more poor students, and districts with relatively high levels of per-student funding tend to employ instructional specialists at a greater rate. Further, the estimates suggest that the time trends that we describe in the main manuscript are independent of changes in district demographics and school expenditures.

Model 2 in Table A1 adds state fixed effects to shed light on the extent to which instructional specialist staffing patterns vary across states. Although the inclusion of state fixed effects does not substantively change either the direction or the magnitude of the time trends, this model indicates that states explain a large proportion of the variation in district instructional specialist staffing.

Table A2 reports logistic regression coefficients representing the relation between districts' demographics and expenditures and their odds of employing large numbers of instructional specialists. The dependent variable in this table's Model 1 is an indicator variable flagging districts that employ two or more specialists per 1,000 students; the dependent variable in Model 2 is an indicator variable flagging districts that employ four or more specialists per 1,000 students. Both models suggest that the relation between districts' minority student enrollment and their odds of having high levels of instructional specialist staffing is high. High-poverty districts also have significantly higher odds of employing more than two specialists per 1,000 students.

Qualitative Data

We supplement these quantitative analyses with data gleaned from conversations with a convenience sample of approximately 20 mathematics instructional specialists working in several Southern California public school districts between 2013 and 2015. The qualitative work is part of a larger project investigating how instruction and placement in middle school mathematics is changing as schools implement the Common Core. Our sample includes specialists that we contacted via employee directories as well as specialists we met while attending informal monthly meetings in which specialists meet at district offices throughout the region to network and discuss a broad array of curricular and professional issues. The sample includes specialists at nine districts located in Los Angeles, Orange, Riverside, and San Diego Counties. The sample includes specialists in affluent suburban districts and high-poverty urban districts. The smallest districts in our sample enroll approximately 20,000 students; the largest enroll approximately 60,000 students.

In one-on-one interviews lasting approximately one hour, we ask specialists to describe their professional background and training, their professional goals, their conception of their professional role, district policies and practices relevant to their professional role, the sources information that inform their work, and the strategies that they use on the job. These interviews are audio recorded and transcribed with specialists' consent; when audio recordings are unavailable, we reconstruct conversations via detailed field notes recorded during interviews and compiled immediately after their conclusion.

When we ask specialists to describe their role, nearly all invoke the new standards. According to one specialist, "my job is to become an expert in the Common Core, or at least to try to become an expert." To do so, the specialists that we talked to routinely attend content-area meetings organized by content-area professional organizations and other nonprofit organizations as well as state and county departments of education. Further, many specialists invest considerable time and energy in the developing professional networks, both via face-to-face networking sessions (like those that our research team regularly observed) and social media.

Having developed expertise in the standards, the instructional specialists that we talked with work with administrators and teachers to help implement them in the classroom. Asked to list the strategies she uses to facilitate Common Core, one specialist lists, "professional development, strengthening site-based instructional leadership, instructional support through [instructional specialists] office." Others emphasize identifying textbooks and curricula that are Common Core aligned and working with teacher leaders to develop pacing guides and lesson plans for teachers to use.

But all of the specialists in our sample emphasize that the process is two directional. One specialist tells us, "I don't like to make a decision by myself. I get the data, put together a leadership team, lay out the options, and help them talk it out. That way, they aren't saying 'district told us to we have to.'" A second explains,

> I think Common Core is attempting to deepen learning and teaching. People are talking about it like it's something that you can buy of the shelf. But it's not. Common Core is just furthering our effort to improve instruction (rather than a new curriculum). This isn't just a 1-year thing. It's a major shift in practice. That's going to take time.

A third specialist tells us, "Common Core is forcing us to pay close attention to instruction." Together with her district's teachers, this specialist is developing "new lessons that are going to be teacher created and classroom refined."

NOTES

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[1]U.S. public school districts have witnessed some degree of demographic change over the past 15 years, as the proportion of poor and Hispanic students increased. However, it seems unlikely that these demographic changes have driven the nationwide increase in instructional specialist staffing in American public schools, and supplementary analyses indicate that the observed growth in instructional specialist staffing is robust to controls for changes in district-level student demographics.

[2]Instructional specialist staffing remained virtually unchanged over the study period in Florida and Pennsylvania. At any given time point, state effects explain approximately 40% of the variance we observe across districts in instructional specialist staffing. However, state effects explain only approximately 2% of the variation in staffing change across the time series.

[3]Dobbin (2009) considers the case of corporate human resources and the implementation of the 1964 Civil Rights Act. Like the Common Core State Standards, the Civil Rights Act set lofty goals for a far-flung and loosely coupled set of actors but lacked clear enforcement mechanisms. As Dobbin demonstrates, the law helped to create a new professional group—corporate human resources officers—that in turn played a central role in implementing its anti-discrimination mandates. By developing and disseminating a range of fair-hiring practices, this new professional group enacted the Civil Rights Act.

[4]Three U.S. states were excluded from analyses. Alaska and New Hampshire reported no staffing of content specialists during this time span, indicating a possible error in staffing numbers submitted. Virginia's data showed an unexplainable and implausibly large increase in instructional specialist positions staffed between the years of 2005 to 2011. Virginia districts reported a specialist:student ratio that was nearly 10 times the national average during this period before dropping to close to the national average in 2012 and 2013.We were unable to identify a reasonable explanation for this large increase and thus excluded the state from our sample to avoid biasing estimates upward.

[5]This definition of the specialist role includes district employees, such as technology specialists and Title I coordinators, who are not involved in the process of sense-making around instructional standards. However, an assessment of staffing in the districts in which we interviewed specialists indicates that nearly all specialists are involved in curriculum and instruction. In addition, the California experience (in which stark increases in specialist staffing coincides with a state initiative to bolster Common Core implementation) supports the notion that this measure is sensitive to changes in sense-making positions relating to instructional standards.

[6]Calculated as (*n* staff/*n* students)*1000. To avoid distortions due to measurement error, our analyses eliminate districts that reported instructional specialist staffing greater than 10 specialists per 1,000 students, on the assumption that these reports are miscoded. Doing so sets fewer than 1% of observed districts to missing. Eliminating these outlying districts arguably imposes a conservative bias on our findings. Analyses including the outlying districts point to even more rapid growth in the mean number of specialists per 1,000 students.

[7]Total district expenditure figures include all district operating costs. To create this figure, we summed the following data: total elementary-secondary instruction cost (including teacher salary and benefits), total elementary-secondary support services cost, other elementary-secondary programming cost, total district capital outlay, and total non-elementary-secondary program cost. All expenditure figures were then inflated to 2014 value for consistency using the Consumer Price Index's inflation calculator (available at http://data.bls.gov/cgi-bin/cpicalc.pl). Since staffing contributes directly to expenditures in any given year, all analyses used the lagged value of district expenditures, although results are robust to the use of current-year expenditures.

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Appendix

Table A1
Coefficients From Random Effects Regression Models Predicting the Number of Instructional Specialists per 1,000 Students Over Time, Conditional on District Expenditures, Enrollment, and Demographics

	Model 1		Model 2	
Variable	**Coefficient**	*SE*	**Coefficient**	*SE*
Year (1999 is reference)				
2000	.006	.014	.001	.014
2001	.123***	.015	.126***	.015
2002	.266***	.014	.270***	.014
2003	.244***	.014	.244***	.014
2004	.211***	.014	.210***	.014
2005	.277***	.014	.277***	.014
2006	.304***	.014	.297***	.014
2007	.445***	.015	.440***	.014
2008	.514***	.015	.508***	.015
2009	.569***	.014	.557***	.014
2010	.517***	.015	.501***	.015
2011	.475***	.015	.458***	.015
2012	.495***	.015	.477***	.015
2013	.748**	.237	.666**	.236
% Black/Hispanic (std)	.061***	.006	.099***	.006
% Free/reduced-price lunch (std)	.019**	.006	.040***	.006
Total student enrollment (std)	.004	.008	.004	.007
Expenditures per student (inflation adj, std)	.052***	.004	.048***	.004
State fixed effects	No		Yes	
Constant	0.517***	0.013	1.055***	0.062
N (district/years)	141,300		141,300	
N (districts)	11,993		11,993	
Overall R^2	0.030		0.199	
Rho	0.418		0.314	

Note: Adj = adjusted; std = standardized.
Source. Public releases of National Center for Education Statistics Common Core of Data (CCD). All estimates exclude districts that failed to report data in CCD districts surveys in 3 or more years during the time series as well as all districts in Alaska, New Hampshire, and Virginia, which consistently reported out-of-range values for staffing data.
**$p < 0.01$. ***$p < .001$.

Table A2
Logistic Regression Coefficients, Odds of Employing Two or More and Four or More Instructional Specialists per 1,000 Students in 2011–2012 School Year

	Model 1: Two or More Instructional Specialists per 1,000 Students		Model 2: Four or More Instructional Specialists per 1,000 Students	
Variable	**Coefficient**	*SE*	**Coefficient**	*SE*
% Black/Hispanic (std)	.115***	.020	.156***	.033
% Free/reduced-price lunch (std)	.085**	.029	–.036	.051
Total student enrollment (std)	.023	.029	–.056	.068
Expenditures per student (inflation adj, std)	.023	.017	.033	.020
Constant	–1.617***	0.028	–2.997***	0.048
N	10,523		10,523	

Note: Adj = adjusted; std = standardized.
Source. Public releases of National Center for Education Statistics Common Core of Data (CCD). All estimates exclude districts that failed to report data in CCD districts surveys in 3 or more years during the time series as well as all districts in Alaska, New Hampshire, and Virginia, which consistently reported out-of-range values for staffing data.
**$p < 0.01$. ***$p < .001$.