

Teacher Hiring and Selection

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Introduction

The potential for effective hiring practices to improve workforce quality is both intuitive and broadly supported by research in the field of personnel economics. Effective hiring is particularly important in the case of the teaching profession. A great deal of evidence demonstrates that teachers are the most important school-based determinant of student outcomes, and poor hiring decisions tend to be more consequential in education than in non-educational contexts. Once an ineffective teacher is hired, it is often difficult to remove him or her from the classroom, and replacing a struggling teacher during the school year is likely to be both disruptive and challenging. Hiring practices are particularly impactful for vulnerable students, who are disproportionately taught by novice teachers.¹

The dynamics of teacher hiring are influenced by several factors that are specific to the context of public school systems. State rules concerning credentialing determine who is eligible to be hired. Teacher salaries are typically determined by salary schedules (rather than individually negotiated), and district budgets are often subject to political processes that are external to school districts. When hiring occurs is driven by the school calendar, and with pressure to fill vacancies prior to the start of the school year, most hiring activities are condensed into the period between March and September.² Finally, hiring procedures may be constrained by collective bargaining agreements that, for example, require hiring managers to prioritize internal candidates such that within-district moves must be settled before external candidates can be considered.

However, within the structures described above, school districts exert substantial control over their hiring processes. Districts have discretion over what information is collected from applicants, how that information is used, the degree to which decision-making is centralized/decentralized, and the design and implementation of screening protocols. Additionally, there is evidence that districts can reform policies that prioritize the placement of internal candidates at the expense of considering external applicants.³

Regarding policy, the arguments for investing resources in improving hiring practices are that current practices are suboptimal and that, given the (albeit limited) empirical evidence that districts often have considerable choice among applicants, the scope for improving workforce quality is meaningful. However, questions remain about which types of hiring practices are most promising. The arguments against investing resources in improving hiring practices are that the scope for change is limited (i.e., districts already tend to hire the best applicants), collecting better information about applicants can be expensive, and, when useful information is collected, hiring managers often fail to use it productively.

Key findings

Key finding #1: *School districts often have a considerable amount of choice among candidates.*

This finding is supported by a series of district-level analyses that use detailed teacher application data as well as broader analyses that compare the number of newly trained teachers to estimated vacancy levels. The fact that districts often have a degree of choice among applicants supports the notion that more effective hiring practices have the capacity to improve the effectiveness of the teacher workforce.

Key finding #2: *Evidence suggests that there is room for improvement in teacher selection.*

Two state-level analyses have found that the effectiveness of newly hired teachers did not increase when the labor market gave school districts more choice among applicants. Additionally, a detailed district-level analysis found that the number of applicants to a position was unrelated to the effectiveness of the hired teacher. These patterns would not be expected if districts were consistently hiring the best applicants.

Key finding #3: *Hiring strategies vary, but evidence suggests that hiring often occurs late and is information poor, with negative implications for students.*

One-third of teachers are hired after the start of the school year, and district policies that prioritize the hiring of internal transfers are a *primary* driver of late hiring. One district has demonstrated how reforms can shift hiring so that it occurs earlier, with large positive effects on educational outcomes.

Key finding #4: *Principals play a critical role in hiring and rely heavily on in-person interviews to inform their decisions.*

Principals report that they seek a mix of professional and personal qualities to obtain a good organizational match; however, they tend to lean most heavily on the in-person interview to make a final decision. The attributes that principals look for in candidates and how they collect information vary, reflecting their varied beliefs and worldviews. This variance may inhibit top-down efforts to orient school-level hiring decisions in a particular direction.

Key finding #5: *Some types of information collected about teacher applicants during the hiring process, including information collected using structured screening protocols, are predictive of performance and retention.*

Districts collect and use a wide variety of information about teacher applicants. The fact that some of this information is moderately predictive of post-hire outcomes is promising. However, there is also evidence that hiring managers often fail to productively use such information, suggesting that there is room for improvement in the screening of applicants.

Understudied topics

Among areas of inquiry in education policy, the overall base of research on teacher selection is relatively limited. While the body of research on how schools and districts approach hiring is growing, we know less about the applicant pools that teachers are being selected from. The available evidence is from a small group of studies that use detailed job application data, with each dataset coming from an individual district. These districts are mid-size to large urban

school districts, and what the studies say about applicant characteristics and their interest in different types of teaching positions may not generalize to the broader educational landscape.

As discussed below, a growing body of evidence links applicant information to teacher outcomes. However, we know little about how the *adoption* of particular selection criteria and screening processes impact workforce quality. Hence, questions remain about how (and whether) districts may be able to leverage the hiring process to achieve gains in educational attainment. Here, the education sector is not alone. There is generally little causal evidence connecting employee selection processes to organizational performance.

Finally, in this chapter, there is an aspect of teacher hiring that I do not address: recruitment. Much of the literature on teacher recruitment is framed around recruitment into the profession, which begins with entry into and matriculation from teacher education programs. The topics of *teacher education* and *teacher supply* are covered in other chapters. District-driven recruitment efforts might involve strategies for augmenting the number of interested applicants (e.g., holding jobs fairs, hosting student teachers, developing homegrown programs, promoting positive working conditions such as smaller class sizes, and offering signing bonuses), but there is little evidence on the degree to which they augment the local teacher supply.⁴ However, there is evidence that targeted increases in compensation tend to increase teacher recruitment and retention.

Policy considerations

While there is evidence that various aspects of teacher hiring practices are suboptimal, little of it demonstrates whether or how districts can improve. Some of the challenges that schools and districts face, such as a condensed hiring calendar and uncertainty around staffing needs and budgets, are structural and may require collaboration with local governments and teachers' unions to change. Other challenges, such as improving the information used to inform hiring decisions, will require broad buy-in from school-level leaders to make a difference. Overall, the empirical evidence supporting the argument that there is room for improvement is solid, but the true scope for change is largely hypothetical.

Evidence

Key finding #1: *School districts often have a considerable amount of choice among candidates.*

This finding is important for understanding the capacity for effective hiring practices to improve the quality of the teacher workforce. Choice among applicants is essential for improved hiring practices to influence the quality of the teacher workforce; more choice implies greater scope for improvement.

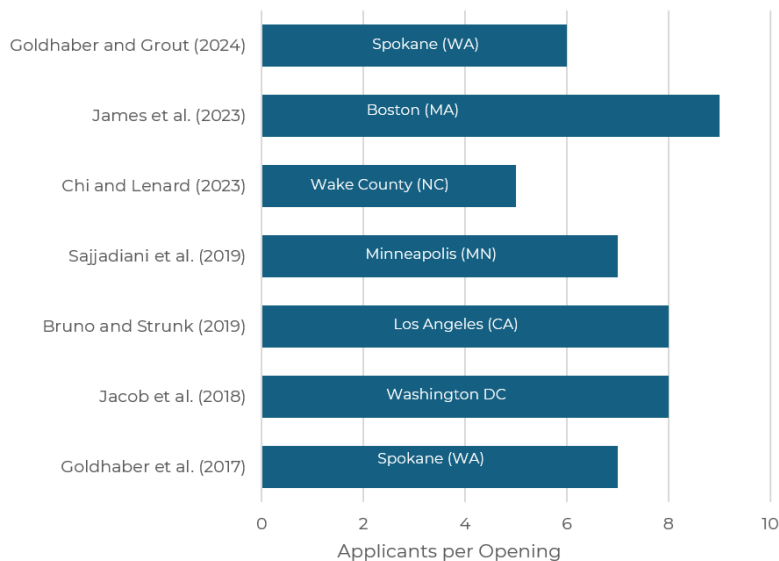
Historically, the applicant-to-hire stage of the teacher labor market has been a black box to some extent. In some states, administrative data have shown the number of teacher candidates matriculating from teacher education programs and the number of teachers entering the public K-12 workforce, providing a broad sense of overall supply and demand.⁵ Until recently, however, the quantity of *actual applicants* across school systems had not been well documented by empirical research.

The past decade has given us a series of detailed, district-level analyses of teacher hiring.⁶ While these studies are not generally focused on the question of how much choice among applicants districts have, they allow us to characterize the ratio of applicants to hires in these

districts. I summarize the applicant-to-hire ratios observed in these recent studies in Figure 1. The numbers reflect the total number of unique applicants (not to be confused with applications) to classroom teaching positions relative to the number of openings.⁷ Overall, these studies demonstrate that at least some districts have a substantial amount of choice among applicants: between 5 and 8 applicants per opening.

In interpreting these ratios, it is important to consider several moderating factors. First, the overall ratio of applicants to openings is likely to obscure substantial variation across content areas and schools. For example, in Boston, researchers found applicant-to-openings ratios of between 5.7: 1 (for science positions) and 15.8: 1 (for social studies positions), and they showed that school factors were also related to application levels.⁸ Second, each of the studied school districts is a mid-size to large urban district in the United States, and there is evidence that the degree to which districts struggle to fill vacancies varies across and within districts.⁹ Hence, the reported applicant-to-opening ratios may not generalize to large segments of the teacher labor market. Third, I interpret these ratios as upper bounds since the applicant pools may include individuals who do not meet minimum qualifications.

Figure 1. Recent studies show districts have choice among teacher applicants



Taken together, the evidence on the amount of choice among teacher applicants that districts have suggests the potential for more effective hiring practices to improve teacher quality. However, we should anticipate that this potential may vary dramatically by content area, geography, and school and district factors such as teacher pay and working conditions.

Key finding #2: *Evidence suggests that there is room for improvement in teacher selection.*

Even with ample choice among applicants, the scope for improvement in teacher hiring may be small if districts already tend to hire the best candidates. In addressing the question of whether districts tend to hire the best candidates, the challenge is that one does not generally observe the counterfactual outcome: How would candidates who were *not selected* have performed had they been hired? Several studies approach this question indirectly by making the argument that

if hiring managers tend to hire the best candidates, then the quality of hired applicants should be higher when the supply of applicants is larger and/or the demand for teachers is lower.

The first of these analyses leverages a 1997 policy change in California that incentivized a dramatic increase in the hiring of K-3 elementary teachers.¹⁰ If districts were identifying and hiring the best applicants, then one would have expected this dramatic increase in demand to have a negative effect on the average effectiveness of newly hired teachers. However, there was no discernable difference in teacher effectiveness following the policy change.

In contrast to the first study, which analyzed a policy shift that tightened the teacher labor market by increasing demand, two other studies examined instances where supply increased, and demand weakened during periods of high unemployment. Using data from Massachusetts, the first of these studies found that students graduating from college were more likely to take a teacher certification test during periods of high unemployment, that this relationship was stronger among higher-achieving students, and that this increase in higher-achieving students taking the test led to a positive effect on new teacher quality.¹¹ However, the relationship between the licensure exam scores of teacher candidates and the probability of finding a teaching job was found to be unrelated to unemployment rates, which suggests that school districts were unable to raise their hiring standards in response to the increase in supply. Using data from Florida, the second study also found a positive relationship between periods of recession and new teacher quality.¹² While this finding is consistent with the notion that school districts were able to take advantage of the increase in supply, the authors did not seek to disentangle supply effects from differential teacher selection, and they found effect sizes that were similar in magnitude to those in the Massachusetts study.

The most detailed evidence supporting this key finding comes from an analysis of teacher hiring in Boston.¹³ The authors found that the number of applicants to a teaching position was generally unrelated to the subsequent effectiveness of the hired teacher and the probability of retention, despite higher-supply positions appearing to attract larger numbers of highly effective candidates. This finding suggests that school leaders struggled to take advantage of larger applicant pools, and it points to an unrealized potential for improvement in teacher screening and selection.

For the reasons stated above, it is difficult to determine whether districts consistently hire the best candidates. The evidence discussed above does not definitively answer the question one way or the other. However, if districts *were* consistently hiring the best candidates, then we would expect to observe certain relationships between supply, demand, and teacher effectiveness and retention. The studies discussed above provide evidence that we *do not* consistently observe these patterns.

Key finding #3: *Hiring strategies vary, but evidence suggests that it often occurs late and is information poor, with negative implications for students.*

The literature has characterized the teacher hiring process as a matching problem focused on the identification of a good fit between the skills, knowledge, and disposition of the candidate and the position being filled.¹⁴ Ideally, it is a two-way process in which both candidates and hiring managers can gauge compatibility with colleagues and the culture of the school.¹⁵

One dimension of teacher hiring that varies across districts is the degree to which decision-making is centralized. Under a fully centralized approach, district-level administrators are responsible for making most hiring decisions and for assigning teachers to schools. In contrast, under a fully decentralized approach, school-level administrators are responsible for screening and selecting applicants. The primary trade-off is between the interest of the district in

maintaining consistent standards and controlling the process and the ability of school leaders to take school-level contexts into account, resulting in a more information-rich hiring process.¹⁶

The most comprehensive evidence on the degree to which teacher hiring is centralized/decentralized is from a study that surveyed 486 new hires in four states (California, Florida, Massachusetts, and Michigan).¹⁷ Nearly half of the respondents reported a highly decentralized hiring process where candidates applied directly to a specific school. Approximately 30% reported a moderately decentralized hiring process that involved centralized screening, with interviewing and hiring decisions occurring at the school level. The remaining group of respondents reported experiencing centralized hiring processes in which they were offered a contract by the central office prior to interviewing to find a specific position (11%) or being directly assigned to a specific position (12%).

While the finding that most districts adopt decentralized hiring processes suggests information-rich hiring, the survey study found that the experiences of newly hired teachers tended to be information poor: Only approximately one-third of new hires visited or observed classes while school was in session, and fewer than 10% provided a sample lesson. Similarly, fewer than half had interviews that involved other teachers at the hiring school.

A second variable dimension of teacher hiring is *when* it occurs. The timing of hiring has implications for whether the process is information rich. After the end of the school year, candidates have limited opportunities to interact with staff and students, teach a sample lesson, or assess person–organization fit. Additionally, late hiring may be rushed as pressure mounts to fill vacancies ahead of the start of school.

Evidence on the timing of hiring shows that late hiring is prevalent. The aforementioned survey study of newly hired teachers found that 33% reported being hired *after* the start of the school year, with another 31% being hired in the month before school started.¹⁸ This pattern of late hiring is also reflected in a statewide analysis of job postings in Washington state that found that 43.5% of jobs were first posted in the summer, with another 10.0% being posted in the fall. Additionally, two district-level analyses report late hiring rates of 17.8% and 26%.¹⁹

Late hiring may affect the quality of hires since stronger applicants will tend to exit the applicant pool earlier. Furthermore, filling a vacancy after the start of the school year may be disruptive to the classroom environment and student learning. A study of late hiring in a large southern school district found that students in classrooms with teachers hired after the start of the school year exhibited lower levels of achievement in mathematics (0.042 standard deviations (s.d.)) and reading (0.026 s.d.) at the end of the school year and that late-hired teachers had much lower retention rates.²⁰

Collective bargaining agreements that require schools to prioritize hiring internal transfers before considering external candidates have been identified as a driver of late hiring.²¹ A study of Boston Public Schools showed how the district implemented reforms that effectively eliminated the internal transfer process.²² The impact of the reforms was dramatic: The median hire date moved up by more than two months, late hiring decreased, retention among new hires improved (+9.8% in year one and +8.4% in year two), and the share of new hires of color increased (+9.4 percentage points (p.p.)). Importantly, the authors found evidence of a positive impact on schoolwide student achievement (+0.09 s.d. in mathematics and +0.07 s.d. in English language arts (ELA)). The authors adopted a difference-in-differences approach to account for trends in student demographics and achievement, and they credibly argued that these results could be interpreted as causal effects. Considered in the context of other education interventions to approve student achievement, the reforms in Boston were characterized as relatively cost effective (medium impact and low cost).²³

Overall, the research discussed above makes a strong case for earlier and more decentralized hiring. Hiring that occurs near or after the start of the school year appears to be prevalent. Finally, the experience in Boston suggests that some districts may be able to realize meaningful improvements to workforce quality by pursuing similar reforms to internal transfer policies.

Key finding #4: *Principals play a critical role in hiring and rely heavily on in-person interviews to inform their decisions.*

Several qualitative studies document the key role played by principals, who are primarily responsible for determining which applicants to interview in person, leading the interview process, and deciding which candidate to hire.

A study that used data from in-depth interviews with 39 principals in a mid-size Florida school district found that principals in the district used a variety of tools to select applicants. Interviews were the most common tool, followed by evaluations of applicants' prior experience, application profiles, and recommendations.²⁴ Using data from interviews with 57 principals across 23 schools districts, a second study found that interviews were ubiquitous and were generally viewed by principals as the best tool available for making good hiring decisions.²⁵ Some principals (17) reported having no other information about the applicant prior to interviewing, and all but one reported checking applicants' references prior to making an offer. Both studies reported that many principals felt confident about knowing who would be successful based on the interview.

Regarding what principals look for, principals have reported that they seek a mix of personal and professional qualities that result in a good "organizational mix" within their schools.²⁶ Achieving this mix may involve hiring teachers who diversify the skillsets and demographic composition of existing staff and who also exhibit compatibility with existing staff in terms of work habits and philosophical outlook. The single-district study found that the applicant qualities that principals viewed as being the most important were having strong teaching skills, caring, and knowing the subject. In contrast, the multidistrict study did not find evidence that principals seek information about candidates' content knowledge or pedagogical skills and, instead, prioritized candidates whom they believed could handle a classroom and possessed strong communication skills, flexibility, and enthusiasm for teaching. Hiring decisions largely relied on organizational fit and a gut feeling about which candidate was the right hire.

Overall, the evidence demonstrates that principals seek different characteristics in candidates and use different tools to gather information, reflecting the varied values, beliefs, and worldviews of school leaders. Hiring is characterized as being oriented toward existing school culture and staff characteristics rather than the curricular or instructional direction of the school. This finding may have implications for the viability of top-down efforts to orient school-level hiring decisions in a particular direction. Indeed, principals have exhibited a willingness to circumvent district policies designed to control the hiring process. For example, some principals acknowledged "end runs" around a district policy meant to prioritize hiring at Title I schools.²⁷ Additionally, many principals reported having attempted to hide vacancies from human resources (HR) staff to avoid being subject to rules prioritizing the hiring of voluntary transfers or excessed teachers.²⁸

Key finding #5: *Some types of information collected about teacher applicants during the hiring process, including information collected using structured screening protocols, are predictive of performance and retention.*

Knowledge of what types of applicant information are predictive of teacher outcomes is important for understanding the extent to which different types of hiring practices might improve

educational outcomes. Until recently, the relationship between the characteristics of teacher applicants and teacher performance was understood to be weak.²⁹ However, a limitation of earlier research was that it relied on administrative data, allowing researchers to observe a limited range of characteristics about employed teachers.

A series of more recent studies, summarized in Table 1, has analyzed various types of applicant information collected during the hiring process, finding mostly promising results. Two of these studies examined information collected from intensive, centralized screening protocols. The first of these studies examined a multistage screening process in Washington's District of Columbia Public Schools (DCPS) used to select applicants into a pool of recommended candidates available to hire.³⁰ The second investigated a similar system implemented in the Los Angeles Unified School District (LAUSD).³¹ The screening protocols included written assessments of pedagogical and content knowledge, personal interviews, and teaching auditions. Both studies found that information collected during the screening process was meaningfully predictive of teacher performance. For example, the DCPS study found that teachers in the top quartile of predicted performance scored 0.71 s.d. higher in actual performance than did teachers from the bottom quartile of predicted performance—roughly twice the growth in performance observed between a teacher's first and third year. However, the DCPS study found that once an applicant advanced into the recommended pool of applicants, the screening score information was only weakly associated with the likelihood that a candidate would be hired in spite of there being considerable variation in the ratings of recommended applicants.³² This finding suggests that school-level hiring managers did not make productive use of the information collected during the screening process.

In earlier work with colleagues, I studied a more decentralized screening system used by Spokane Public Schools (SPS).³³ To determine which applicants to interview in person, school principals used a standardized screening rubric. Scoring was based on the information available in applicants' profiles, including resumes, personal statements, and letters of recommendation. We found that scores on the screening rubric were meaningfully predictive of teacher performance and retention. For example, students assigned to teachers scoring 1 s.d. higher on the screening rubric were predicted to score 6% s.d. higher in mathematics—roughly the difference between being assigned to a novice teacher and being assigned to a teacher with one year of experience.³⁴ The findings suggest that principals can discern applicant quality from standard applicant information.

Table 1: Differences in teacher outcomes predicted by a 1 s.d. difference in measures of applicant quality

Study	Information Type	Math	Reading	Performance Evaluations	Retention
Jacob et al. (2018) DC Public Schools	Centralized screening protocol	21% (composite measure)			+4 p.p. school retention
Bruno and Strunk (2019); Los Angeles USD	Centralized screening protocol	Null	2%	16%	+1.6 p.p. school retention
Goldhaber et al. (2017); Spokane Public Schools	School-level screening rubric	6%	Null	N/A	+3 p.p. district retention
Goldhaber et al. (2024), Goldhaber and Grout (2024); Spokane Public Schools	Structured reference ratings	2%	Null	13%	+3 p.p. school retention
Sajjadi et al. (2019); Minneapolis Public Schools	Machine learning-based measures of work history	5 to 17%		8 to 11%	8 to 11% decrease in turnover hazard
Chi and Lenard (2023); Wake County Public Schools	Commercially available applicant screener	Null	Null	6%	-3.4 p.p. school retention

Notes: Null indicates that the relationship between the measure of applicant quality and the teacher outcome was not statistically significant. N/A indicates that the relationship was not analyzed. The composite measure is a performance evaluation score that incorporates teacher value-added information when available. Retention is reported in percentage points (p.p.) or turnover hazard.

In studying SPS's screening rubric, we learned that principals considered letters of recommendation to be an important source of information for assessing applicants. This finding led us to ask whether we could collect better information from references in the form of structured ratings on criteria of interest to SPS. As shown in Table 1, we found the ratings to be significantly predictive of teacher performance and modestly predictive of school-level retention.³⁵ However, in an experiment where the ratings were provided to hiring managers on a randomized basis, we failed to find evidence that they influenced hiring decisions—a finding consistent with the DCPS study.³⁶

A study in Minneapolis Public Schools (MPS) took a different approach to analyzing existing applicant information. Machine learning techniques were used to generate three measures related to applicants' work histories: work experience relevance, tenure history, and attributions for previous turnover. The authors found significant relationships between these measures and work outcomes, including teacher performance and retention. Again, the magnitude of these relationships was meaningful, with students assigned to teachers scoring 1 s.d. higher on measures of work history predicted to score 8 to 11% s.d. higher on standardized tests. Their findings demonstrate that hiring managers should pay attention to work history information and that it is possible to use machine learning to facilitate the use of such information.

Finally, there is some evidence that applicant scores on commercially available screening tools are predictive of teacher outcomes. A study in Wake County Public Schools analyzed Frontline Education's TeacherFit instrument, which uses a survey approach to assess applicants' attitudes, beliefs, habits, and personality traits.³⁷ The authors found that applicant scores were modestly predictive of teacher performance evaluations. However, they also found that higher scoring applicants were more likely to leave their hiring school in the subsequent year. A study of teachers in New York City found a similar pattern between scores on a commercially available screening tool (the Haberman PreScreener) and measures of performance and school-level retention, although the information was not collected in a job application setting.³⁸

Overall, the evidence on the relationship between applicant information collected during the hiring process and teacher outcomes is promising. The studies from Spokane and Minneapolis provide evidence that information that is typically collected during the application process, including letters of recommendation and applicants' work histories, is predictive of teacher outcomes. There is also evidence that meaningful information can be collected through centralized screening, although collecting such information may be relatively costly. The authors of the DCPS study estimated that the annual marginal cost of implementing the centralized screening system was approximately \$370–1,070 per new hire. The ultimate utility of collecting additional applicant information will depend on how it is used, and questions remain about whether school-level hiring managers are likely to incorporate such information into their decision-making processes. Nonetheless, principals have exhibited a willingness to incorporate information about teacher performance into talent management decisions (including hiring) when central offices establish systems to support them in interpreting and using such data.³⁹

Concluding remarks about the evidence on teacher hiring

In summary, I find the evidence in support of the notion that there is scope for change in teacher hiring to be convincing. At a high level, the weak relationship between teacher supply and

teacher quality suggests that districts often fail to take advantage of larger pools of applicants. Additionally, looking at teacher hiring practices more closely, I see that there is evidence of where teacher hiring appears to fall short. The evidence is particularly strong with respect to the timing of hiring, with multiple studies linking late hiring—specifically, hiring that occurs after the start of the school year—to worse outcomes for students. Furthermore, there are convincing conceptual arguments that support the idea that earlier and more decentralized hiring processes should be more information rich and result in better hiring outcomes. Evidence that information obtained from the implementation of structured screening protocols is predictive of post-hire outcomes recommends their use, but we know little about how such information influences hiring decisions. Overall, the scope for change is likely to vary considerably from district to district depending on how many teachers are hired each year, the local supply of qualified applicants, and existing practices.

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