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Equitable Access to Capable Teachers: The States Respond

Gary Sykes

Educational Testing Service



Kacy Martin

Michigan State University

United States

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Abstract: This study examined a sample of plans that states submitted to the U.S. Education Department in 2015, pursuant to requirements in the Elementary and Secondary Education Act Title I, Part A. Plans were aimed at redressing inequities in access to qualified teachers as this problem has emerged in states and districts across the country. A considerable body of research has demonstrated that teachers are inequitably distributed to the disadvantage of low income and historically under-served students. Based on descriptive and inferential coding of these plans, the study reaches several conclusions. First, the federal planning mandate has served as

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an impetus for developing state data systems that track teacher distributions. Second, many of the strategies states are proposing are not directly relevant, targeted, or fully committed in terms of resources and implementation. Third, in states with highly rated plans, the strategies address fundamental, underlying conditions while offering a comprehensive range of targeted strategies to improve recruitment, support, and retention of teachers in schools serving concentrations of low income and under-served students. Progress on this issue is underway with much that remains to be done.

Key words: equity; access; teachers; education policy

Acceso equitativo a maestros capacitados: Los estados responden

Resumen: Este estudio examinó una muestra de los planes que los estados presentaron al Departamento de Educación de los EE. UU. En 2015, de conformidad con los requisitos de la Ley de Educación Primaria y Secundaria Título I, Parte A. Los planes tenían como objetivo corregir las desigualdades en el acceso a maestros calificados como este problema Ha surgido en los estados y distritos de todo el país. Un considerable cuerpo de investigación ha demostrado que los docentes se distribuyen de manera desigual en desventaja para los estudiantes de bajos ingresos y con pocos servicios. Basado en la codificación descriptiva e inferencial de estos planes, el estudio llega a varias conclusiones. Primero, el mandato de planificación federal ha servido como un impulso para el desarrollo de sistemas de datos estatales que rastrean las distribuciones de los maestros. En segundo lugar, muchas de las estrategias que proponen los estados no son directamente relevantes, específicas o totalmente comprometidas en términos de recursos e implementación. En tercer lugar, en los estados con planes altamente calificados, las estrategias abordan las condiciones fundamentales subyacentes al tiempo que ofrecen una amplia gama de estrategias dirigidas para mejorar el reclutamiento, el apoyo y la retención de maestros en escuelas que atienden a concentraciones de estudiantes de bajos ingresos y con pocos servicios. El progreso en este tema está en marcha y queda mucho por hacer.

Palabras clave: equidad; acceso; maestros; política educativa

Acesso equitativo a professores capazes: Os estados respondem

Resumo: Este estudo examinou uma amostra de planos que os estados submeteram ao Departamento de Educação dos EUA em 2015, de acordo com os requisitos Elementary and Secondary Education Act Title I, Part A. Os planos objetivavam corrigir as iniquidades no acesso a professores qualificados. surgiu em estados e distritos em todo o país. Um corpo considerável de pesquisas demonstrou que os professores são distribuídos de forma desigual para a desvantagem de estudantes de baixa renda e historicamente mal servidos. Com base na codificação descritiva e inferencial desses planos, o estudo chega a várias conclusões. Primeiro, o mandato de planejamento federal serviu como impulso para o desenvolvimento de sistemas de dados estaduais que acompanham as distribuições de professores. Segundo, muitos dos estados que as estratégias estão propondo não são diretamente relevantes, direcionados ou totalmente comprometidos em termos de recursos e implementação. Terceiro, em estados com planos altamente avaliados, as estratégias abordam condições subjacentes fundamentais, oferecendo uma gama abrangente de estratégias direcionadas para melhorar o recrutamento, o apoio e a retenção de professores em escolas que atendem a concentrações de alunos de baixa renda e mal servidos. O progresso nessa questão está em andamento por muitas necessidades a serem feitas.

Palavras-chave: equidade; acesso; professores; política educacional

Introduction

Beginning with the No Child Left Behind (NCLB) Act, the federal government has required states to submit plans to address the inequitable distribution of teachers across districts and schools. This planning mandate was continued in the Every Student Succeeds Act (ESSA), with current plans due in 2017-18. Section five of the ESSA reporting template, “Supporting Excellent Educators” directs attention to how states will utilize federal funds to improve licensure and certification, educator preparation programs, and professional growth for educators. Under section 5.2, “Educator Equity,” states are directed to provide a table that calculates differences in statewide rates at which low-income and minority students enrolled in schools receiving funds under Title I, Part A are taught by unqualified, out-of-field, and inexperienced teachers compared to non-low-income and non-minority students.¹ Further, states must then identify “likely causes or most significant differences” in rates of access, then provide strategies to address gaps in access to qualified teachers.”

ESSA provides greater flexibility than NCLB in the use of federal funds, with an emphasis on more coherent and comprehensive ways to support talent management in teaching. But teacher equity has retained salience across multiple reauthorizations of the federal government’s largest education program.² This is the emerging context in the ongoing negotiations between the federal government and the states regarding issues of teacher distribution.

In this paper we analyze a sample of the plans that have been submitted with several considerations motivating our interest. Teacher quality and effectiveness has emerged as a crucial issue in providing a sound education for all children. Extending educational opportunity to those children in our society most in need, at greatest risk, is clearly a challenge that will require interventions not only in schools but also in a larger set of circumstances affecting children’s lives. But when policy analysts and advocates assemble such broad-gauge strategies, teacher quality is invariably included in the mix (see for example, Duncan & Murnane, 2014; O’Day & Smith, 2016; Putnam, 2015; Rice, 2015).

A second consideration concerns the nature of the problems and the level of the system from which some leverage on them is likely to obtain. Teacher sorting is a complex, multi-level problem in the U.S. system of education nested within state, district, and school levels. Addressing problems of teacher equity is a responsibility shared across all levels of the system, but the state has an important role to play, both directly and indirectly in supporting conditions for local responses.

Examination of a sample of plans allows us to see central tendencies in where states are placing their initial emphasis within the constraints they face and to discover any outliers—entrepreneurial ideas that may commend attention and be worth tracking and testing. There is always the possibility that in a sample of responses some promising new ideas might be put forth that are worth highlighting for further attention. Examination of central tendencies and outlying

¹ States varied in how they identified these terms. A range of years, from one to five was used to identify lack of experience; both qualifications and field were determined according to certification and endorsement status. Some states also used NCLB’s “highly qualified teacher” designation to measure qualifications and teaching field. See Williams, Adrien, Murthy, & Pietryka, 2016, pp. 12-13, for details.

² At the time of this writing USED is reviewing the ESSA planning template and may issue revisions to the current guidance.

ideas also provides one basis for a preliminary assessment of these plans in relation to the nexus of problems associated with teacher equity.³

Our research questions then are descriptive and to some extent evaluative. We ask:

- What strategies and broad themes are states proposing to address inequitable access to capable teachers?
- Of these strategies, which appear directly relevant and targeted to issues of inequitable access to capable teachers? What is the evidence of state commitment to enacting these strategies?
- What variation in proposed strategies exists among states?
- What distinguished high quality plans from those of lower quality?

To preview our results, we note several observations concerning state responses to inequities in the distribution of capable teachers. Overall, a significant percentage of strategies proposed by the states were not directly relevant to problems of teacher equity. Even fewer were explicitly targeted to locales where equity problems are prevalent, or offered explicit commitment to policy implementation. Further, the most commonly proposed strategies emphasized collecting, analyzing, and disseminating information related to the problems associated with teacher equity, followed by strategies such as improved recruitment or mentoring/induction programs that aim to address aspects of the problem.

While there was considerable variation across states, we hypothesize that three factors account for this pattern of results. First, many of the proposed strategies track on the federal policy guidance that emphasizes more fine-grained, local evidence that specifies the contours of the problem. In particular, the requirement to identify “root causes” and to provide evidence-based descriptions of the problems derives directly from federal guidance. Second, many of the proposed strategies track on what states already are doing with respect to teacher policy, even as many such initiatives have tenuous relation to issues of teacher distribution and access. Third, responses were limited to those matters under the control of SEAs, which left many root causes unaddressed.

Examination of states that we rated highly also revealed some important patterns. We hypothesize first that states offering a wider array of strategies that treated a broader set of influences were in better position to address the underlying problems. Equally important, states that addressed the underlying fundamentals, such as finance equity, we suggest, offer a greater chance of making a difference. Simply layering a set of small-bore policies atop systems harboring substantial inequity in basic conditions (e.g., large disparities in starting salaries), is not well calculated to produce strong effects. Our paper includes four sections. First, we examine the contours of the problem concerning the inequitable distribution of teachers. What is the evidence indicating that this is a significant issue requiring remedy? Next, we provide background on the policy and its precedents. What is the policy history in this area? Then, we describe our study, attending to

³ “Teacher equity” is a phrase we will use in this paper as a shorthand for equitable access to capable teachers. The ideal is that all children should have access to qualified and capable teachers. ESSA singles out teacher experience, out-of-field teaching, and effectiveness as measured on teacher evaluations as the relevant indicators. Capability is a construct, less easily measured, that refers to teachers’ knowledge, skills, dispositions and their successful use in teaching diverse students. We prefer the term “capability” to that of “effectiveness” due to the latter’s association with value-added measures of student achievement, which involve a series of technical problems as identified by the scholarly and research community (see American Educational Research Association, 2015; American Statistical Association, 2014).

method, approach, and limitations. Our results make up the next section of the paper, followed by a concluding summary and discussion.

The Inequitable Distribution of Teachers

Why are policymakers interested in the distribution of teachers? What have studies on this issue revealed about the nature, extent, and consequences of teacher distribution as a policy problem? Contemporary interest in evidence-based policymaking calls for response to these questions (Lingenfelter, 2015). Before analyzing state initiatives in response to the federal policy, we provide a brief summary of the evidence related to teacher distribution as a policy problem.

Importance of Teacher Quality

Attention to teacher quality and equity has been fueled by two influential lines of research that have emerged quite strongly in the last 10-15 years, abetted by the availability of new datasets that permit estimation of teacher effects and teacher distributions. One line of research involves studies that estimate the relative importance of school-related resources to student achievement. Such studies report that teacher effects are centrally important in accounting for the outcomes of schooling, including student achievement (Aaronson, Barrow, & Sander, 2007; Chetty, Friedman, & Rockoff, 2013; Nye, Konstantopoulos, & Hedges, 2004; Rivkin, Hanushek, & Kain, 2005; Rockoff, 2004; Wong, 2018). One summary of these studies indicates that, on average, students with teachers in the top quartile of the talent pool achieve an additional two to three months per year compared with students in the bottom quartile of the teacher distribution (Miller & Chait, 2008, p. 1). Gauged against other in-school expenditures such as reducing class sizes, teachers constitute the single, largest within-school influence on student achievement (Hanushek, 1986; Rivkin et al., 2005).

Measuring Inequality in Access to Teachers

Then, what evidence has been mobilized to describe the inequitable distribution of capable teachers across schools and districts? This is an important initial question because the federal policy presumes this is a critical problem. Studies have provided four kinds of evidence, including attention to the distribution of teacher qualifications; the relation of teacher qualifications to student outcome measures; more recently, the distribution of student outcome measures attributable to individual teachers as the indicator of effectiveness; and evidence from qualitative case studies.

Distribution of teacher qualifications. First, studies have shown that teacher qualifications are inequitably distributed (Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2006; Clotfelter, Ladd, & Vigdor, 2007a, 2007b; Goldhaber & Brewer, 2000; Goldhaber, Quince, & Theobald, 2018). The measures used in these studies include, for example, years of teaching experience, credentials, test scores, and quality of undergraduate institution. Credentials typically include such categories as out of field teaching, emergency or substandard permits, advanced degrees, and National Board Certification. These studies reveal that schools serving low-income and under-served students⁴ typically include more novice teachers, teachers with nonstandard credentials, and teachers whose

⁴ In this paper we will use the term “low-income” to denote students who typically qualify for free and reduced price meals and “underserved students” to denote students who are American Indian, African-American, and Hispanic. Other designations refer to school characteristics. “High-poverty” refers to schools that serve concentrations of low-income students and that have fewer school resources than more advantaged schools. “Low-performing” refers to schools whose aggregated and disaggregated student achievement on tests of mathematics and English language arts is chronically low, typically in relation to other schools in the district.

academic qualifications are weaker. This body of evidence is most prominently referenced in the federal guidelines.

Qualifications and student learning outcomes. A second set of studies explores the relationship of these credentials to student achievement, typically on value-added measures (VAM). Here, the evidence is less clear. Some measures of qualifications or credentials appear more strongly related to student outcomes than others, although this relationship is often conditioned on the subject matter being measured (i.e., stronger relationships with achievement in mathematics than in reading; Goldhaber & Brewer, 2000). Years of experience matter to some degree (Kini & Podolsky, 2016), while MA degrees for the most part do not (Goldhaber & Brewer 1997, 2000). Overall, though, the relationship among credentials and value-added measures of student achievement is moderate. Some studies consequently discount the relationship (Goldhaber, 2007; Kane, Rockoff, & Staiger, 2007), while others conclude that credentials do matter, at least to some degree. In particular, when credentials are combined rather than being measured singly, the effect is strengthened (Clotfelter, Ladd, & Vigdor, 2007a, 2007b). For example, novice teachers with mediocre test scores and with sub-standard credentials tend to produce less achievement than their contrasting counterparts.

Student achievement as indicator of teaching quality. A third set of studies uses value-added measures of student achievement directly as the indicator of teaching effectiveness. These studies present a range of outcomes. Certain studies find modestly inequitable distributions of teachers when measured on this indicator (Glazerman & Max, 2011; Goldhaber, Lavery & Theobald, 2015; Mansfield, 2015; Sass, Hannaway, Xu, Figlio, & Feng, 2012; Steele, Pepper, Springer, & Lockwood, 2015). But other studies find at most a negligible relationship between teachers' VAM scores in high- vs. low-poverty schools (Isenberg, et al., 2016). These investigators concluded that, "Most of these studies find that the teachers of low-income students and high-poverty schools are less effective on average, but the magnitude of inequity varies across studies" (Isenberg, et al., 2016, p. A-3).

Case study evidence. Finally, a less well synthesized literature employs qualitative case studies that reveal how teachers' lack of content knowledge and of their students' understanding of content limits their instructional effectiveness (for examples, see Kucan, Hapgood, & Palinscar, 2011; Santagata, 2009), mostly to the disadvantage of students in high-poverty, low-achieving schools.

Part of the explanation for these differing results and their interpretation involves methodological issues of various kinds (for review, see Goldhaber, Quince, & Theobald, 2016). For example, studies employ different value-added models that account, in varying ways, for the characteristics of the classrooms within which students reside, and they measure average teacher effectiveness for high- and low-income students or high- and low-poverty schools or for students with different levels of family income. Some studies measure the average differences in teacher value-added, while others measure the likelihood of having a highly effective or highly ineffective teacher. These and other choices in research designs complicate comparisons and simple syntheses of results.

Explaining Inequitable Access to Teachers

Still other studies have also contributed to the general climate of opinion stressing the importance of access to qualified teachers. Such studies describe the factors influencing how and why teachers are sorted (or sort themselves) across schools and districts. By and large, studies of this kind reveal significant disadvantages for schools serving low-income and under-served students.

Teacher sorting occurs across districts within states (Cowan, Goldhaber, & Theobald, 2016; Goldhaber, et al., 2015), across schools within districts (Boyd, Lankford, Loeb, Ronfeldt, & Wyckoff, 2010; Feng & Sass, 2011), and within schools (Grissom, Kalogrides, & Loeb, 2015; Kalogrides & Loeb, 2013; Kalogrides, Loeb, & Beteille, 2013; Neild & Farley-Ripple, 2008). Even moves from one grade to another can affect a teacher's effectiveness (Atteberry, Loeb, & Wyckoff, 2016; Blazar, 2015; Brummet, Gershenson, & Hayes, 2017).

The draw of home. Many factors contribute to such sorting. For example, teachers prefer to teach close to home creating a natural advantage for districts with many preparation programs nearby (Boyd, Lankford, Loeb, Wyckoff, 2005a; Reiningger, 2012). A study of teacher applicant preferences in Chicago revealed the presence of “homophily” with teachers preferring schools whose students were similar to themselves on such characteristics as race and ethnicity, resulting in an uneven distribution of applicants to the disadvantage of schools serving low income and under-served students (Engel, Jacob, & Curran, 2014).

Assignments, neighborhoods, salaries. Further, student teaching assignments predict where an individual finds her first teaching job, with higher qualified candidates assigned to more advantaged schools (Krieg, Theobald, & Goldhaber, 2016). Schools, these investigators propose, use student teaching as a screening device when hiring new teachers and some schools have greater access to the pool of teachers in training than other schools. As well, so-called “neighborhood effects” have been shown to influence teacher sorting, with some locales proving more attractive than others (Boyd, Lankford, Loeb, Ronfeldt, & Wyckoff, 2011).⁵ Teacher salaries vary significantly from district to district in many states, providing a recruitment advantage typically reaped by wealthy districts serving advantaged students (Adamson & Darling-Hammond, 2011; Baker & Weber, 2016). Advantaged schools wind up then with larger budgets due to higher teacher salaries provided to more experienced teachers who transfer into such schools (Condrón & Roscigno, 2003; Roza & Hill, 2004).

Effects of teacher transfers. Teachers transfer out of some schools into others, with the process generally favoring more advantaged schools (Boyd, Lankford, Loeb, & Wyckoff, 2005b; Lankford, Loeb, & Wyckoff, 2002). As one study reports, “On average each year, high-poverty public schools—especially those in urban areas—lost 20% of their faculty (Ingersoll, 2001).⁶ In fact, many schools serving America's neediest children lose over half of their teaching staff every five years...and in New York City middle schools, 66% of teachers exit within five years of entry” (Simon & Johnson, 2015, p. 4). Further, teacher turnover adversely affects student achievement particularly in lower-achievement schools due to the loss of experience and productivity following reallocation of incumbent teachers to different grades (Hanushek, Rivkin, & Schiman, 2016).⁷

⁵ A study using 59 community districts in New York City found “in applying to schools, teachers tend to favor neighborhoods with higher median family income and less violent crime. In higher density areas, teachers also favor neighborhoods with greater local amenities, particularly for practical...and leisure purposes” (Boyd, et al. 2011, p. 378). Geography also influences retention, with teachers leaving schools further from home in order to return to schools near where they grew up (Boyd, Lankford, & Wyckoff, 2008).

⁶ The most recent study of teacher retention in urban districts reveals considerable variation across districts while concluding that, “in some districts, nearly 60% of all teachers leave within five years, while in others only one in three leaves” (Papay, Bacher-Hicks, Page, & Marinell, 2017 p. 437). Their study extends Ingersoll's earlier work in demonstrating how variable districts are in teacher retention, which also implicates the costs to districts with low rates of retention, further under-cutting their capacity to support teaching staff.

⁷ A recent paper expands understanding of turnover by utilizing six different measures that illustrate long- as well as short-term instability in teaching faculties. Overall, “...schools that are in greatest need of

Effects of collective bargaining. Another factor influencing teacher mobility is collective bargaining, which provides for seniority-based transfers in many cases. Some evidence indicates that this provision promotes transfers out of schools serving disadvantaged students on the part of experienced teachers with seniority rights. Such patterns are evident in states with collective bargaining when compared to states without it (Goldhaber, Lavery, & Theobald, 2016; Goldhaber, Quince, & Theobald, 2018).

Student characteristics or working conditions? Studies initially proposed that student characteristics accounted for teacher transfer and exit from such schools (Guarino, Santibaez, & Daley, 2006). Typical of this work, Hanushek, Kain, and Rivkin (2004) found that on average when teachers transfer, they “seek out schools with fewer academically and economically disadvantaged students” (p. 340). They go on to estimate that salary differentials to counter this trend among early career women would be 25-40% above current pay rates. Other studies have confirmed this estimate (Imazeki, 2005).

Contemporary research however reveals that working conditions in schools rather than student characteristics per se account for patterns of transfer and exit (Hornig, 2009; Johnson, Berg, & Donaldson, 2005; Ladd, 2011; Loeb, Darling-Hammond, & Luczak, 2005; Simon & Johnson, 2015). Among working conditions that matter, several stand out. They include competent leadership from the school principal (Allensworth, Ponisciak, & Mazzeo, 2009; Boyd, et al., 2011; Grissom, 2011; Ladd, 2011), collegial support among teachers, and a shared set of professional goals and purposes (Fuller, Waite, Miller, & Irribarra, 2013; Simon & Johnson, 2015). As well, schools featuring strong student discipline oriented to shared norms of behavior and good relationships with parents contributes to positive school cultures that support teachers in their work (Kraft, Marinell, & Yee, 2016; Simon & Johnson, 2015). Simon and Johnson (2015) conclude that while salaries, teaching loads, and time demands matter to teachers, “working conditions that are social in nature likely supersede marginal improvements to pay or teaching schedules in importance. Teachers who leave their schools routinely report dissatisfaction with their administration as a chief reason. Therefore, improving the caliber of principals in high-poverty schools would be a high-leverage approach for districts intent on retaining teachers” (p. 27; see also Burkhauser, 2017).⁸

Effects of “churn.” Schools at a disadvantage tend to feature higher rates of teacher turnover producing “churn” in their faculties which itself creates problems for students’ learning (Atteberry, et al., 2016; Barbieri, Rossetti, & Sestito, 2013; Guin, K., 2004; Ronfeldt, Loeb, & Wyckoff, 2013; Simon & Johnson, 2015), particularly as less effective teachers are more likely to move around more frequently (Goldhaber, Gross, & Player, 2011). Patterns of chronic turnover in schools tend to yield teaching staffs with many novice teachers who on average are less effective than teachers with more experience.⁹ Turnover also requires schools to reconfigure teaching

improvement are more often those experiencing chronic instability” (Holme, Jabbar, Germain, & Dinning, 2018, p. 640).

⁸ Certainly the school principal has emerged as a critical factor in supporting teachers working in high-poverty schools, yielding a clear policy prescription to recruit top quality principals for such schools. But studies reveal that principals also prefer to work in schools that enjoy similar advantages to those that teachers seek (Loeb, Kalogrides, & Hornig, 2010). Still, principal recruitment and retention looks to be a promising target for policy.

⁹ A recent synthesis argues to overturn the conventional view that teachers improve over the first 3-5 years of experience, plateauing thereafter (Kini & Podolsky, 2016). Rather, gains to experience extend over a much longer period of years underscoring that schools with a more seasoned, stable faculty are more likely to be effective in improving student achievement.

assignments in ways that cause disruptions. As well, constant turnover undercuts the conditions needed to sustain trusting relationships among teachers and with students. And finally, schools with a steady influx of new, inexperienced staff may lack the leadership needed to mentor new teachers, develop programs, and improve instruction as a collective endeavor. It is not just the loss of teachers but the disruptions over and above the competence of individual teachers that creates significant problems (Ronfeldt, Loeb, & Wyckoff, 2013; Simon & Johnson, 2015).

Effects of district policies and practices. Complementing this focus on schools' social conditions, district policies and procedures contribute as well to teacher mobility patterns. Some districts are more efficient in hiring teachers, entering the market sooner and employing more effective screening practices (Levin & Quinn, 2003; Useem & Farley, 2004). One study finds that late-hired teachers are less effective, particularly in relation to mathematics achievement, and late hiring has been found to be more prevalent in districts serving disadvantaged student populations (Papay & Kraft, 2016). Initial teacher assignments can discourage new teachers together with the absence of support provided by competent mentors and induction programs (Feng, 2010; Johnson, Kardos, Kauffman, Liu, & Donaldson, 2004; Liu & Johnson, 2006). Effective schools provide novice teachers with more equitable teaching assignments (Loeb, Kalogrides, & Beteille, 2012). Transfers and reductions in force governed by seniority provisions in teacher contracts also contribute to inequitable teacher sorting (Anzia & Moe, 2014; Knight & Strunk, 2016). Inefficient administrative practices tend to be located in large urban districts that educate many low-income and underserved students (Knight & Strunk, 2016).

Effects of teacher preparation. Finally, some research suggests a link between characteristics of teacher preparation and retention (Ingersoll, Merrill, & May, 2014). While preparation programs vary widely, those that provide more training in teaching methods and pedagogy—especially practice teaching coupled with observations of others' teaching and feedback on one's own teaching—yielded greater retention after the first year in the classroom.

There are nuances to this general description involving different kinds of teachers (elementary or secondary, mathematics or English, white or African-American) and different kinds of districts (urban vs. rural, large vs. small, integrated vs. segregated), but the general patterns are widespread and deeply rooted. The broad outlines of the policy problem then are relatively clear. Due to a constellation of factors, students who most need access to capable teachers are least likely to have benefit of this crucial in-school resource. This problem is particularly acute in urban and rurally isolated districts, but sorting processes operate not only between districts but also within them, and even within schools. A range of remedies has been proposed for addressing causes of the problem, but the evidence in support is relatively thin: "the field needs a better understanding of effective strategies for retaining teachers, particularly top-performing ones," is a typical comment by researchers studying the problem (Papay, Bacher-Hicks, Page, & Marinell, 2017, p. 443). Whether a federal mandate can stimulate useful responses among the states to these problems is the question to which we turn next.

Federal Policy to Redress Inequitable Access to Teachers

A Policy Logic

The federal planning mandate launched under NCLB, continued in ESSA, involves both a policy logic and a practice logic. The policy logic contains four key elements: (1) a requirement to submit plans to the USED as specified in a planning protocol; (2) a set of technical assistant agents to support state development and implementation of the plans; (3) feedback on the plans from technical assistants to improve them; and (4) suggestions for use of federal and other funding sources

to implement remedies. For example, states might use Teacher Incentive Fund grants (now folded into ESSA, Title II, Part B) strategically to support initiatives or ESSA Title II Part A monies and others to pursue policy objectives.

The technical assistance network is particularly impressive. It includes one of the federal comprehensive centers on Great Teachers and Leaders operated by the American Institutes for Research; the Equitable Action Support Network, another federally sponsored organization; and affiliated agencies that include the federal content specific centers, the regional comprehensive centers, and the Equity Assistance Centers. All of these sources have produced a considerable body of guidance for the states to draw on. These include sample plans; policy briefs that supply guidance on each element of the planning template and planning process; educator equity profiles for each state that supply relevant data; and a wide range of resources that include scholarly and other treatments of the teacher equity problem and potential remedies.

Notably absent from this policy model is any enforcement mechanism. The policy relies on information and moral suasion to prompt state action together with recommendations for use of existing federal funding sources to create incentives that support program implementation. Such an approach is in keeping with the general turn in federal policy from enforcement to flexible guidelines for states to follow, particularly evident in ESSA. Still, past efforts in the ESEA Title I program to use planning coupled with technical assistance as a policy tool proved generally ineffective, raising questions about this approach (for this history, see Cohen and Moffitt, 2009, pp. 80-84).

A Logic of Practice Improvement

The theory of practice embodied in the planning protocol is similarly clear and simple (United States Department of Education, 2014). The logic line specifies first that equity gaps be carefully identified based on analysis of relatively fine-grained data and input from stakeholder groups. Then, based on these two sources of information states conduct a “root cause” analysis that pins down the factors contributing to the inequitable distribution of teachers. In response to this analysis, states develop a set of strategies designed to address the root causes together with a timeline for implementing the strategies and a description of how the SEA will monitor Local Education Agency (LEA) actions in response to the strategies. Finally, SEAs will develop measures to evaluate progress and will publicly report on such progress. In effect, this theory of practice represents a continuous improvement model. States must experiment with a range of strategies designed to address their specific problems, then track over time whether the strategies chosen are achieving results. The process is experimental because there is no firm research base to guide choice of strategies.

Policy Antecedents

The immediate precursor to this federal policy was certain requirements established in the No Child Left Behind Act of 2001. The law mandated that “highly qualified teachers” (HQT) be provided for all students, which came to be defined in terms of a college degree, state certification, and indication of relevant subject matter knowledge. In the early years, the federal government provided no oversight or monitoring of this requirement, resulting in many noncompliant state definitions of highly qualified teachers. As a result USED instituted greater oversight that still tilted toward considerable state flexibility. Reports continued to uncover noncompliance so that by mid-2004 USED stepped up its oversight by sending monitoring teams to each state to review their progress. It took the department almost two full years to complete these visits at which time it issued a report that detailed the uneven progress the states had made. By May 2006 USED required states to have detailed written equity plans to ensure equitable distribution of teachers. By the end of

the 2006-2007 school year all states were required to submit a revised plan, and the department convened a panel of experts to review each plan according to a common protocol. Only 28 states managed to submit an equity plan, and only seven were deemed acceptable. According to Loeb and Miller (2009), the most common criticism from reviewers was the lack of data to pinpoint where inequities were occurring.

Loeb and Miller concluded that increased oversight and attention to the law's accountability mechanisms has yielded some results. All states now have HQT definitions and at least one round of complete and accurate data on teacher quality. But they also admit considerable variation across the states, with many, "...still a long way from correcting the current inequitable distribution of teacher quality whereby students in low-income, high-minority, low-achieving schools are taught by less-qualified teachers than other students" (p. 217). Drawing on another of their reports (Loeb & Miller, 2006), they also note that most states have funded incentive plans to recruit and retain teachers; they conjecture that the combination of the HQT provision together with incentives has somewhat improved the supply of teachers to traditionally difficult-to-staff schools.

These analysts argue that when the federal government increased its oversight via monitoring visits to every state, the response was improved. And, when the federal government included incentives for programs such as loan forgiveness, salary supplements, housing benefits, and others, these measures achieved some success, although they point out that such incentives have not always been targeted to difficult-to-staff schools nor have they been carefully evaluated (p. 217).

The current policy then continues the planning mandate coupled with technical assistance and such incentives as may be mobilized out of existing funding sources. There is some indication that USED will monitor the plans over time and continue to provide feedback but there are no mechanisms in place to compel compliance nor exercise rigorous oversight, no clear sanctions that might be imposed for non-compliance.

Study Methods

Initial Coding

We began data collection by examining state plans, selected via a random, blind draw, to determine what aspects of the plan to code. Federal planning guidance specified strategies to be proposed, and the plans provided a separate section in which these were described. Our first coding decision was to concentrate on the strategy section of the plans. Then, prior to coding, we generated broad categories of strategies that we hypothesized would be included in the plans. These derived initially from the typology of policy instruments that prior investigators had identified, which included (a) mandates, (b) incentives, (c) capacity-building, (d) system changing, and (e) persuasion (McDonnell, 2004; McDonnell & Elmore, 1991). Our initial framework crossed these general categories with commonplace targets for the teacher workforce including, for example, preservice education, recruitment, retention, professional development, mentoring and induction, and others. Our assumption was that the strategies would involve one or another of the policy instruments applied to one or more of the commonplace categories for the teacher workforce. For example, a strategy might call for special incentives to recruit teachers to high need schools.

Then, we began coding the plans using this initial framework. For example, we coded actions to address working conditions for teachers as "COND." As coding proceeded, we revised, refined, and elaborated our codes by adding new codes, identifying new categories, extending meanings, and bridging codes in new configurations (Lincoln & Guba, 1985). We continued this procedure until we were no longer making revisions to the set, which yielded a final list of 35 descriptive codes as included in Appendix A.

Grouping Codes into Thematic Clusters

Next, we grouped these codes into a set of thematic clusters, indicating the main areas of emphasis in the state plans. The seven themes included:

State Capabilities. These codes referred to steps that states are taking to improve their capabilities with respect to teacher equity. Many of these initiatives involve improving data and data analysis capabilities, enhancing technical assistance capabilities, employing technology, and creating tools of various kinds for local uses.

Local Capabilities. Another set of codes reflected efforts to improve local capabilities, including uses of funding streams, together with improved government relations and general capacity-building. Also included were improvements to data management.

Recruitment. A traditional target for state policy involves efforts to improve recruitment of teachers, particularly for high need districts. Codes involving alternative preparation programs, salary and other incentives, public relation campaigns, and improvements to hiring procedures were grouped here.

Retention. Likewise, states also proposed strategies to help retain teachers in high need districts. Mentoring and induction programs, new incentives, enhanced leadership and improved working conditions were grouped here, particularly if these strategies were explicitly targeted to teacher retention.

School Culture. A set of strategies aimed broadly to improve school culture in support of teachers' work, particularly around improved collaboration and teamwork. Included here were initiatives to recruit, prepare, and support school principals for work in high need schools, together with such other strategies as the use of work culture surveys for teachers.

Teacher Workforce. These strategies all related to improving the workforce via changes to licensure and certification, teacher preparation, teaching standards and teacher evaluation policies and procedures.

Teacher Knowledge. The strategies in this group all operate through improvements in teacher knowledge and skill. References to professional development, coaching, teacher preparation, and mentoring and induction were grouped here.

Certain of the strategies served more than one purpose or fit with more than just one of the themes. For example, developing and analyzing information related to teacher distributions applies at both local and state levels, so codes for those strategies support capacity-building at both levels. In such cases, we included the code in more than one cluster because our purpose was to provide an indication of the attention devoted to each of these themes rather than to strictly identify each code with just one theme.

Developing Secondary Codes

In the midst of this descriptive coding we noticed several features of the codes from which we formed a hypothesis concerning the likelihood that the strategies being proposed would have

effects. We noticed for example that some of the proposed strategies appeared irrelevant to problems of teacher equity, even by a generous standard. An example of an apparently irrelevant or non-salient strategy is to offer training to district personnel on data use. Likewise, we hypothesized that a proposition to adopt outcome-based standards for approval of teacher preparation programs had little direct connection to the question of equitable teacher distribution.

Further, because problems of teacher equity tend to concentrate in some locales, particularly in large urban and rurally isolated districts, we assumed that strategies would need to be targeted to such areas to maximize influence. Many of the plans, for example, used the NCLB designations of “priority” or “focus” schools that were lagging in student achievement results and growth, but the plans also included other specific targets. We looked for indications in the plans that strategies were being targeted specifically to such districts and schools.

Finally, we also noticed that descriptions of the strategies varied in the degree of commitment signaled by the language in the plan. In some instances, strategies referred to activity already underway. In other instances, references indicated commitment to new activities signaled by actual resource allocation, time commitments of key personnel, and legislative or administrative decisions already made. In yet other cases, strategies were proposed with vague or uncertain commitment, signaled by such verbs as “advocate for,” “consider,” “may include,” or “explore creation of...” These might be cases where the state proposed to study a matter, or simply referenced a strategy as an example of something that would be valuable or that might be considered at some future time without an actual commitment to undertake it. We used the commitment code for the first two cases, activities either already underway or clearly intended.

Our emergent hypothesis holds that strategies that are relevant, targeted, and committed are more likely to exert influence on core problems of teacher equity. We then applied these second-order codes to the descriptive codes. Our coding then involved these two levels of analysis—descriptive and inferential—as proposed by Miles and Huberman (1994, p. 65).

All plans were coded independently by each of the study authors. Initially, we calculated simple inter-rater agreement (the number of agreements divided by the total number of agreements and disagreements) to check on concurrence. This method proved somewhat inconsistent across the coded plans. While the total initial inter-rater agreement across plans was 93%, the wide variation in the level of agreement by plan warranted further discussion. For example, many plans were virtually identically coded during the initial round, while others had an agreement rate of 70% or less. Consequently, we determined that a better procedure would be to code randomly selected plans in batches of four to six and then meet to review and reconcile differences in order to reach consensus. In these meetings, we discussed and resolved issues about what “chunk” of text in a plan served as the relevant unit of analysis, to eliminate redundancy when the same strategy was mentioned more than once, to make more explicit the meaning of particular codes as manifest in the plans, to discuss any new codes, and to reconcile differences in interpretation and understanding. In this process we periodically recoded the plans to include new and updated codes so that coding and recoding occurred simultaneously over the course of data analysis.

Rating Plans for Overall Quality

We then rated the overall quality of the state plans via a four-step procedure. First, we identified criteria of quality. Then, we each rated the plans independently, applying the criteria to the plan using a four-point scale. In a third step, we each created a summary rating for each plan on the four-point scale, based on the criterion ratings. Finally, we compared our summary ratings, discussed cases where we differed, and agreed on a final rating based on our discussions of each case.

Creating criteria. Criteria of quality derived from two sources: the federal guidance and the interpretive codes that we developed. The policy logic called for data-based analysis of teacher distribution issues (“analysis of data”), proposed concrete action steps in response (“specific, concrete actions”), and marshalling of resources from existing federal funds and other sources, also an indication of commitment (“resources”). Then, our evaluative codes drew attention to strategies that were evidently related to problems of distribution (“clearly relevant”) and explicitly targeted to locales where teacher equity was an issue (“target specific schools”). Finally, we employed one quantitative criterion that referenced the scale of effort as indicated by the number of strategies that a state proposed (“many aspects”). The scoring rubric (see Appendix B) provided guidance for these criteria on a four-point scale.

Rating the plans on each criterion. We then each rated the plans on each of the six criteria, employing the scoring rubric for this analysis. This process yielded two independent ratings for each plan on each of the six criteria.

Producing a summary rating. In a third step, we each reached a summary decision on an overall rating for each plan, based on the ratings at the criterion level. This decision was a judgment call based on the preponderance of the evidence, rather than resulting from a formal procedure for aggregating the criterion ratings. We reasoned that taking into account an overall sense of a plan, conditioned on the ratings, was the best procedure for reaching a summative rating.

Reconciling ratings. Finally, we compared our ratings, discussed differences, and reached a consensus final rating. In the process we frequently made comparisons across plans as another check on the ratings, to ensure rough comparability. Initial agreement on summary ratings was high for plans receiving a “one” or a “four,” but mixed for plans receiving the middle two ratings. Consequently, we have greater confidence in the validity of the ratings at the high and low levels, less so with ratings in the middle range, where the difference between a “two” and “three” was more debatable.

Arriving at a Final Sample

Our original intent was to code all 50 state plans but when we reached saturation with our codes and had identified no new codes, we terminated coding with a final sample of 31 states. Table 1 compares the sample states to all states on a set of common features, indicating the similarity of the sample states to the full population of states. In sum, we first have identified a set of particular strategies that states are proposing that we next clustered into a set of themes. This information simply presents what the states are proposing. Then, we developed a second set of codes hypothesized to reflect the quality of the plans around the dimensions of relevance, targeting, and commitment. We are able to apply these codes at two levels of analysis: across all state plans and by individual state. We also consulted the federal planning guidance to develop a set of criteria for evaluating the plans overall (for correspondence with the guidance) and used these criteria to develop a rating of each plan. Finally, to provide the reader with greater contextual detail together with a sense of how a set of strategies might cohere, we provide brief case studies of three plans rated as exemplary (recalling that our ratings are based not on results but on correspondence with the logic of the federal policy guidelines).

Table 1
State Study Sample

Key State Characteristic	Population	Sample
Avg. Number of Districts per State	319.74	325.52
Proportion of Districts Classified Rural	55%	61%
Percentage of States with Large Urban Districts	39%	38%
Percentage of Students who Qualify for Free & Reduced Lunch	35%	36%
Average 8th grade NAEP Math Score	245	245.6
Percentage of Northeastern States	18%	16%
Percentage of Southern States	32%	29%
Percentage of Midwestern States	24%	29%
Percentage of Western States	26%	26%

Study Results

We organize presentation of results around our research questions, moving from descriptive to more interpretive findings. First, we examine the number of codes assigned to each of the thematic clusters, simply to show the relative emphasis overall, across all of the states. Then, we display those codes that received the greatest mention by the states, expressed as a percentage of states planning to employ those particular strategies. Next, we present some indications of variability across the states in strategy use and then examine the relationship between the first-order descriptive codes and the three evaluative codes (i.e., relevant, targeted, committed). Finally, we present the ratings on overall plan quality together with a check on the relationship between plan ratings and the three evaluative codes. Three state case studies are then used to illustrate potentially valuable approaches to teacher equity problems.

What Strategies and Themes Attracted the Greatest Attention Among the States?

Distribution of strategies by theme. Figure 1 presents the distribution of strategies across a set of broad themes, reflecting the relative emphasis among these approaches to issues of teacher distribution. We reiterate that some codes were included in more than one theme because certain strategies support more than one emphasis. The retention theme and the school culture theme enjoy a close relationship insofar as improvements to school culture are often proposed in part to enhance retention of capable teachers. Both recruitment and retention are represented prominently among the strategies as might be expected. Further, and in keeping with the federal guidance emphasizing the capacity of states and localities to gather and use information, provide tools and technical assistance, and utilize federal and other funding sources, the twin capability themes, taken together, received strong emphasis. States also are investing in a variety of strategies to develop teacher knowledge and skill at both pre-service and in-service stages, as represented by the teacher knowledge theme.

Looking at the distribution of these themes across the states, about one half of the states in our sample attended to issues of state and local capacity-building and teacher knowledge, one third attended to retention and teacher workforce issues, and one quarter included strategies associated with recruitment and school culture. That recruitment-oriented strategies received the

greatest attention overall, while appearing in only nine states, indicates that recruitment was a dominant strategy in those states, attracting a range of initiatives, while garnering little attention in the majority of states. Our hunch here is that states facing significant shortages of teachers were more likely to emphasize recruitment strategies than states where teacher supply was more nearly equal to demand.

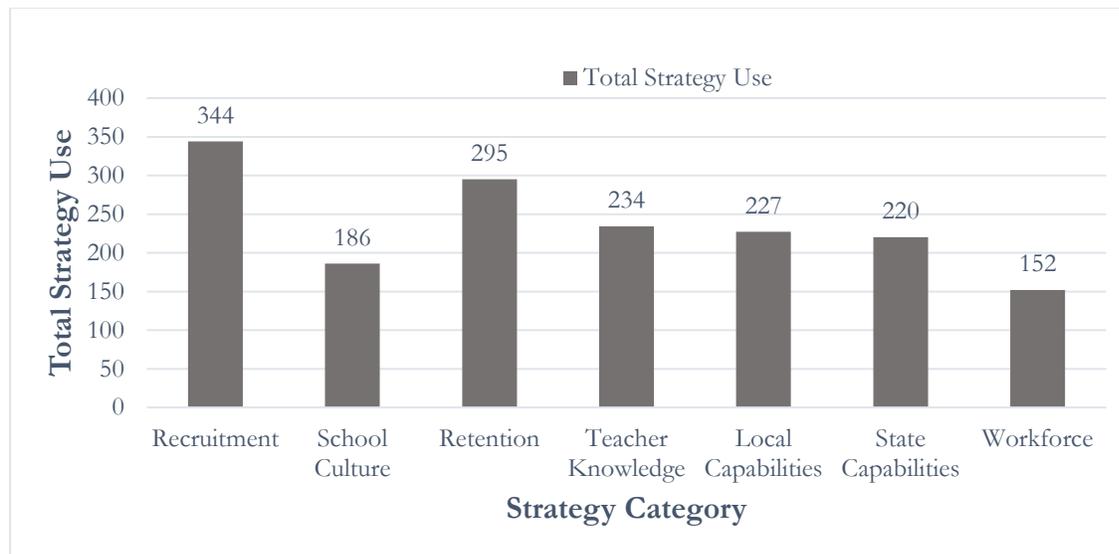


Figure 1. Strategy Distribution by Thematic Clusters

Strategies receiving greatest attention. Next, in Table 2, we present the codes that received greatest frequency of mention among the sampled states. These included gathering and analysis of information related to equitable access (INFORMATION, ANALYSIS); providing professional development and pre-service preparation (PROFESSIONAL DEVELOPMENT, TEACHER PREPARATION); broadly defined efforts to recruit more teachers (TEACHER RECRUITMENT); equitable allocation of funds (DOLLAR USE); strategies aligned with teacher evaluation policies (EVALUATION); and suggestions for expanding general capacity of schools or districts (GENERAL CAPACITY). Of the strategies most often used, four of the top ten dealt with enhancing state capabilities in addressing the issue. Other strategies used by two thirds of the states attended to teacher preparation and professional development together with recruitment. Looking at overall or total use, six strategies were mentioned in 60% or more of the state plans and were often discussed multiple times within the same state plan (where each mention referenced a different instance of a strategy). These included developing information (INFORMATION) and improving teacher preparation (TEACHER PREPARATION).

Table 2
Ranking of Strategy Use by Percentage of State Mentions

Proposed Strategy for Addressing Inequitable Teacher Distribution	Percentage of State Plans Proposing Strategy Use at Least Once
INFORMATION	74%
ANALYSIS	68%
PROFESSIONALDEVELOPMENT	68%
TEACHER PREPARATION	65%
TEACHER RECRUITMENT	65%
DOLLAR USE	61%
EVALUATION	58%
GENERAL CAPACITY	58%
TECHNICAL ASSISTANCE	55%
SCHOOL LEADERSHIP	52%

Mentoring and induction received attention in nearly one-half of the states, with attention to specific retention incentives, general support, working conditions, and career enhancements mentioned in over one quarter of the states. Many of the codes involved a range of specific strategies. Mentoring, for example, included the following kinds of activity: assisting mentors in using teacher evaluation standards to provide targeted coaching to struggling teachers, state-sponsored training for mentor teachers, competitive grants to school districts to develop mentoring programs, increasing the number of National Board Certified Teachers in the state to serve as mentors, and identifying funding sources for stipends and released time for mentors.

We also examined variation across the states in terms of strategies they proposed. Our tally yielded a mean of 23 strategies per state with a standard deviation of 12.7, indicating large variation across states. Three states proposed 40 or more strategies with the top state offering 67 strategies. Four states proposed fewer than 10 strategies overall.

Overall distribution of secondary codes. Next, we examined the distribution of our secondary codes together with their relation to the primary codes. Our tally found that 63% of all strategies mentioned were coded as relevant, 41% as targeted, and 44% as committed. How to evaluate these tallies is an interpretive question, but in plans explicitly directed to issues of inequitable access, these percentages raise some questions. One observation is that many strategies reflect past policy priorities that are not well-aligned with issues of teacher equity. For example, a case might be made that state efforts to develop and refine standards for teaching that may be employed to guide teacher preparation, development, evaluation, and support will arguably improve equitable access insofar as such policies affect the teacher workforce as a whole. But the connection of such policy to the specific problems of equity is tenuous. Even then as we generously interpreted our “relevance” code, we still found a good many initiatives not well directed and targeted to issues of equity and access.

Underscoring this point is a look at this matter by state. Here, the ratings on targeted codes ranged from a high of 68% to a low of zero targeted strategies. The mean across all the states was only 33%, and one third of the states had 10% or less of strategies that were explicitly targeted to districts where equity problems were most severe.

Applying secondary codes to strategies. Then we examined the relation between the descriptive codes and the three evaluative codes. Here, we were interested to see if some of the

strategies proposed by the states are more likely to be relevant to the problem of teacher equity, targeted to schools where the problem is located, and supported by commitments to action.

Table 3 presents the 10 most frequently used strategies arrayed by these three evaluative codes. Overall, we can notice that strategies were more frequently coded as relevant, less frequently as targeted and committed. Several hypotheses might explain these results. First, these strategies conform closely to the federal guidance, to the logic outlined in the policy model. States are working on improvements in their data systems that track teacher distributions and that direct local education agencies to funds that are available for use in working on teacher equity problems.

Second, these strategies tend to reflect prior or ongoing work that SEAs have been engaged in. For example, the federal Race To The Top program emphasized improvements to teacher evaluation systems and in licensure and certification requirements. In recent years, many states have been working on these policy concerns.

Table 3

Top 10 Used Strategies and Evaluative Code Percentage

Proposed Strategy for Addressing Inequitable Teacher Distribution	Percentage Strategy Use Classified as Relevant to the Problem	Percentage Strategy Use Targeted to the Problem	Percentage Strategy Use Committed to Allocating Resources
ANALYSIS	45%	40%	26%
INFORMATION	48%	36%	30%
DOLLAR USE	67%	55%	38%
PROFL DEVELOP	73%	44%	41%
TEACHER PREP	49%	33%	41%
TECHNICAL ASST	59%	32%	57%
EVALUATION	35%	26%	35%
SCHOOL LDRSHIP	48%	39%	55%
TEACH RECRUIT	71%	73%	27%
CERT REQUIRE	52%	38%	28%

Third, these strategies are under the control of SEAs, which have the capacity to organize, gather, and analyze information and to allocate discretionary federal funds. As mentioned, technical assistance of various kinds is a strategy that states have been employing for some time, including attention to professional development via such prior funding streams as ESEA Title II monies and others. Recruitment strategies also fall under SEA purview as a priority of longstanding, particularly in relation to perennial teacher shortages in such areas as the STEM fields, special education, and ESL or bilingual education. SEAs are used to complying with federal reporting requirements, in this case strongly fortified by all of the technical assistance organized to support the states. And, SEAs respond on the basis of their current capabilities. When root cause analyses turn up factors beyond the control of SEAs, this is not immediately actionable information. Rather, state agencies do what they can within jurisdictional constraints.

SEAs can make other overtures for work on equity issues. For example, they can commission studies or reports, assemble task forces to study and make recommendations, and “make plans to make plans,” indicating future intentions of some kind. Such actions we did not code as committed and sometimes not as targeted. Agency personnel may be fully committed to teacher

equity but must work within political constraints associated with other state actors such as the legislature, the Governor, and the State Board of Education.

But if we ask which codes were tagged at least half the time as relevant (nine codes), targeted (five codes), and committed (six codes), this is another indication of how infrequently strategies were directly related and committed to work on equity issues. Strategies that require additional funding often did not receive the committed code. For example, codes used infrequently included reference to salary increases incentives for recruitment and retention and uses of technology to extend instruction to remote and isolated regions of a state

The evidence here suggests that a sizable fraction of what is proposed in the plans lacks vital connection to the particular equity issues associated with the distribution and sorting of teachers across schools and districts. While states have been quite active in pursuing “teacher policy,” much of this work does not address issues of distribution and access. Many of the strategies being proposed address in principle the problems identified in the research literature, but when such strategies are not specifically targeted to locales where the problems are significant and when the plans do not provide indication of actual commitment to pursue key strategies, then the likelihood of their import and impact is questionable.

Rating plans for overall quality. As indicated above, we rated the plans for overall quality. The ratings yielded six plans that received the highest rating (a rating of 1), seven at the high/moderate level (a rating of 2), 10 plans rated as low/moderate (a rating of 3), and eight plans that received the lowest rating (a rating of 4). Comparison of the six top-rated plans with the eight lowest-rated reveals some differences. In particular, the top-rated plans offered considerably more strategies than those that received the lowest rating. The number of strategies in the six top-rated states ranged from 20 to 67, while in the eight lowest-rated states, the number ranged from 7 to 22.

We also would expect that top-rated plans would include more strategies rated as relevant, targeted, and committed. Here, we have an internal validity check because we applied the overall quality ratings independently from the strategy codes. Figure 2 presents these data, confirming expectations. Each of the three evaluative codes is associated with overall plan quality.

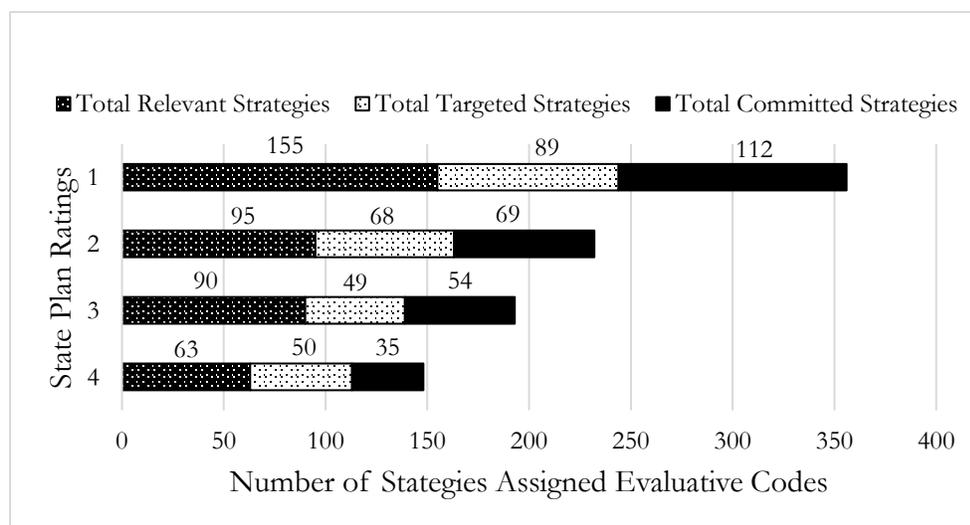


Figure 2. Distribution of Strategies Coded Relevant, Targeted, and Committed by Plan Rating

Accounting for the unequal number of plans in the four rating groups, Figure 3 illustrates the apparent relationship between plan rating using the average percentage of strategies coded as relevant, targeted, and committed.

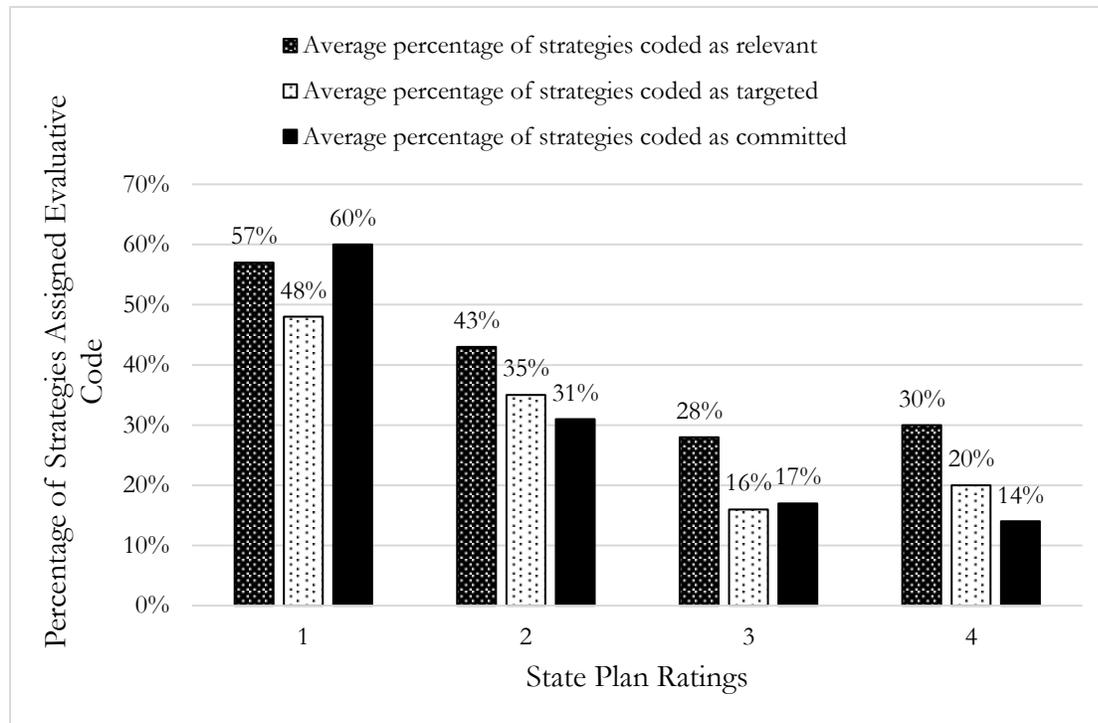


Figure 3. Average Percentage of Strategies Coded Relevant, Targeted, and Committed by Plan Rating

Case Studies

To provide a more concrete sense of plans that were rated highly, we selected three to describe in some detail.¹⁰ From the six states receiving an overall quality rating of “one” we selected Delaware, Minnesota, and Nevada for several reasons. We wanted some geographic diversity rather than clustering plans in a particular region of the country. We wanted some contrast among the plans in relation to historic commitments to equity, leading to the selection of Nevada in contrast to Minnesota and Delaware. And, we wanted plans that exhibited some range of strategies that were proposed in order to demonstrate the possibilities that states might pursue in promoting greater teacher equity. These considerations led to the three states that we next highlight.

The National Report Card on state finance systems (Baker, Farrie, Luhm, & Sciarra, 2016) ranks Delaware and Minnesota first and second among all states in terms of the fairness of their education finance systems while Nevada ranks last. The report states:

The four most progressive states, Delaware, Minnesota, Utah, and Ohio, provide their highest poverty districts, on average, with between 27% and 81% more funding than their

¹⁰ To check on the accuracy of these state cases, we sent the draft cases to individuals in the respective SEAs who prepared the plans. They reviewed the cases, corrected errors, updated information, and provided the state’s draft ESSA application together with other materials. Among these states, Minnesota was not due to submit their ESSA application until September, 2017, so we had only preliminary information for that state.

lowest poverty districts. In contrast, the most regressive states provide significantly less funding to their highest poverty districts....in Nevada high poverty districts receive only 71 cents to the dollar. (p. 6)

The report also provides a measure of teacher-to-student ratio. Here, both Delaware and Minnesota are progressive in providing more teachers per 100 students in high poverty districts than in low poverty districts. Nevada ranks last among all states on this comparison, where the poorest districts have about 29% fewer teachers per 100 students than low poverty districts (p. 15).

We might expect that our qualitative ranking of state teacher equity plans would track on school finance equity insofar as past commitments should be good predictors of future commitments. States with progressive financing for schools provide poor districts with more fiscal support, which can translate into incentives to teach in those districts. Here, though, we offer cases that come, interestingly, from the top and the bottom of school finance equity comparisons.

Delaware: A small state contemplates big improvements. Delaware educates over 159,000 students in 19 districts and 27 charter schools. The student body is 44% white, 30.4% African-American, 17% Latino, and 8% other. Over 9,000 teachers work in the state's public schools.¹¹ Wilmington, a city of 72,846 residents, features a student body, among the districts serving the city, that is 58% African-American and 32% white, with a small percentage of Latino and other groups.

Court orders over the years promoted a measure of desegregation there, dividing the original district of Wilmington into several districts, each including some urban and suburban schools. But nearly 18% of students in the city attend private schools, placing Wilmington in the top ten cities on this metric.

While Delaware ranks high on finance equity in comparison with others states, one report finds some significant disparities among districts in overall spending. For example, total federal, state, and local revenue per pupil varies around the state average of \$13,247 from a low of \$10,019 to a high of over \$16,000 (Roza, 2015). This analyst recommends that Delaware might utilize a student-weighted allocation system for teachers that would promote greater staffing flexibility at the local level (the current system involves staffing units based on number of students that in practice yields little local flexibility in staffing).

Delaware is a relatively small state organized into a small set of school districts, which simplifies efforts by the Delaware Department of Education to work closely with districts and with the small number of teacher preparation programs in the state. Delaware features some small urban and rural districts but compared with many other states, geography is a less significant impediment to the distribution of teachers.

The Delaware plan (Delaware Department of Education, 2015) features the highest number of strategies overall, organized into seven broad areas, under which 16 more specific initiatives are presented. The plan makes clear that the state has been working on issues of human capital management that includes efforts to create what they term an "excellent educator continuum" to support teacher leadership for advanced roles and responsibilities. This work has been unfolding for a number of years such that the plan is a mix of initiatives already underway, those that are planned to commence, and those that still are in the planning stages. Delaware and Tennessee received the

¹¹ See the state department of education's website at <http://profiles.doe.k12.de.us/SchoolProfiles/State/Account.aspx> for updated statistics.

first Race to the Top Grants in 2010—for \$100M in Delaware’s case—and these funds along with state contributions have supported a number of initiatives.

The seven strategies in their plan attend to some of the most widely noted features of the teacher equity problem, and three features stand out, attending directly to the teacher workforce, to development and distribution of qualified principals, and to careful targeting of initiatives to schools serving low income and under-represented students.

Enhancing the teacher workforce. To support statewide recruitment of teachers, the state has created an electronic portal, Join Delaware Schools, on which applicants register for all teaching positions. This database provides direct assistance to districts, and the plan provides some anecdotal evidence suggesting this resource has been particularly helpful for districts with high need schools.

The state also is marshalling and allocating additional resources to assist districts and schools that historically have encountered difficulties in attracting and retaining teachers. The state has organized a set of teacher leader networks that include Science Teacher Leaders, Teachers of the Year, Lead Mentors and Mentors, Teacher Leader Pilot (instructional and cultural building leads) and “LearnZillion” teachers who are working collaboratively on developing formative assessments aligned with the state’s standards for learning. Further, the state is tracking how many of each of these teacher leaders are working in high need schools, with the intention of increasing their numbers. They also are tracking retention rates for teachers rated as highly effective, particularly retention in high need schools. Some data shows higher rates of retention for highly effective teachers in high need schools, an indication that the state is making progress.

Attracting and supporting principals. Attention to principal recruitment and support is a strategic initiative supported by the research finding that principals are critical in supporting the work of teachers, new teachers in particular, which enhances teacher retention in high need schools (Boyd & Grossman, 2011; Fuller, Hollingsworth, & Pendorf, 2017; Johnson, Kraft, & Papay, 2012; Kardos, Johnson, Peske, Kauffman, & Liu, 2001; Simon & Johnson, 2015). The strategy builds on the assumption that recruiting and retaining good principals will have pay-off in recruiting and retaining capable teachers in high need schools.

The state also is making a strong commitment along these lines. Initiatives include four approved alternative training programs for principals to serve in the state’s highest need schools, including involvement with the Relay National Principal’s Academy Fellowship Program. The goal is to train 10 leaders per year with a focus on high need schools as part of a national network of principals serving students from low-income communities.

As well, the state has sponsored university-based preparation of leadership coaches who work weekly with principals. From 2011-2015, the Department of Education has supplied 65 development coaches per year. Finally, the state also provides “community of practice” support for principal supervisors, creating a forum within which they are developing a new administrator evaluation system. New initiatives include a Leadership Design Fellowship to assist districts in identifying and developing principal leaders.

Targeting strategies to foster equity. The plan clearly links this emphasis on principal leadership to high need schools, providing evidence of specific targeting that might hold promise for reducing gaps in access to capable teachers. Other targeted strategies include special teacher preparation programs for teachers willing to work in high need schools; targeted recruitment incentives; and grants to LEAs to support teacher induction programs in high need schools. Notable is the set of incentives offered through the Delaware Talent Cooperative. These include retention awards between \$2,500 and \$4,000 during a two-year period for educators already working in high need schools; initial and ongoing training for all teachers; special leadership opportunities;

recognition ceremony with the state Secretary of Education; and school grants of up to \$10,000 for improvement efforts that address equity gaps (Delaware Department of Education, p. 50).

We also can ask whether there is any evidence of addressing some of the fundamental, underlying conditions that create equitable access. Here the plan is suggestive. A statewide taskforce has been studying compensation systems with an eye to developing an alternative that would create career pathways for teachers to help retain effective teachers in the profession. The plan proposes significant salary increases for new teacher leadership roles, with an emphasis on designated high need schools that would receive a larger proportion of such roles.

The state also has been considering alternate funding models to increase local flexibility for fund use, although the Commission looking into this issue has yet to reach consensus on a particular model. Their plan expresses interest, for example, in support for wraparound services to support students' holistic needs in high-need schools. While the state has not enacted such provision there is at least the indication of fundamental equity thinking that stakeholders are engaged in.

Delaware's application to ESSA updates these initiatives with relatively fine-grained data tracking on a range of teacher equity indicators (Delaware Department of Education, 2017). Their data reveals gaps between student groups (e.g., high and low income students, minority and nonminority students) in access to teachers (pp. 74-75), and the plan includes development of an expanded set of teacher equity indicators such as the rate of highly effective teacher turnover in high-need vs. non-high-need schools, increase in number of applications for positions in high-need schools, percentage of educators earning highly effective summative ratings in high-need vs. non-high-need schools, and many others.

In sum, then, Delaware's 2015 teacher equity plan together with follow up in their ESSA application reveal a state that is tracking a rich and varied set of indicators on teacher equity while implementing a wide set of initiatives aimed at addressing the problems. Their plans demonstrate a firm grasp on the contours of the problem and a firm commitment to work out remedies that include specific, long-term policy objectives to reduce critical gaps in access to qualified teachers.

Minnesota: Forging a comprehensive approach to teacher equity. The land of 10,000 lakes includes 328 school districts, over 2,000 schools, and one of the largest charter school sectors in the country, numbering 164 schools. Of the 856,000 students in Minnesota's public schools, 54,000 are educated in charter schools. The student population is 10% African American, 6% Latino, and 65% white, and the remainder, other.¹²

In their recent report on school finance equity, the Education Trust (2015) ranked Minnesota as one of the top two states in the country for equitable distribution of funding for low-income and under-served students. The state includes provision for Compensatory Revenue, allocated to school sites based on percentage of FRL students. Funds must be targeted to serve high needs students based on school site decision-making within uses that are allowed by the state. The state also has an Achievement and Integration program that supplies grants to eligible districts in order to reduce disparities in academic achievement among students and to increase racial and economic integration in schools and districts.

A targeted commitment. The state has identified a set of 108 Focus Schools and 43 Priority Schools that have consistently under-performed, and they target efforts toward these schools. Their plan organizes initiatives into seven areas within which a large number of initiatives are underway. Their main themes include (a) sharpening the state department of education's focus on equity by increasing technical assistance support; (b) providing targeted support to identified schools; (c) integrating equity into district and charter workforce plans that are submitted to the state

¹² See the state department of education's website at <http://education.state.mn.us/mde/index.html>

for review; (d) implementing teacher workforce development strategies to targeted areas; (e) strengthening teacher induction; (f) increasing support for charter schools and authorizers; and (g) attending to funding and resource allocation.

The Minnesota plan (Minnesota Department of Education, 2015) is noteworthy in several respects. In particular, it is comprehensive in addressing multiple aspects of the equity problem by employing the full range of policy tools (McDonnell & Elmore, 1987). For example, the plan includes capacity-building strategies up and down the education system. These include a commitment to fund three new “equity specialist” positions in the SEA and the Regional Centers, who will champion the plans and provide technical assistance and training. Staff training will occur at all levels of the system, from the SEA through the Regional Centers and into schools and districts. In particular the plan focuses such training on a theme we did not see in any other plan—the idea of “institutional racism,” which, “refers to the policies and practices within and across institutions that, intentionally or not, produce outcomes that chronically favor, or put a racial group at a disadvantage” (p. 24). Other capacity-building strategies include the provision of coaching support for leadership teams and individual teachers, professional development planning in the schools, and better support for teacher induction practices in the schools.

Employing multiple policy tools. The plan also includes a mix and balance of mandates and incentives. In conjunction with a statewide initiative known as *The World’s Best Workforce*, districts and charter schools must submit plans to the Commissioner of Education for review, feedback, and public reporting. Legislation enacted in Minnesota in 2013 mandated that districts develop plans that address five system-wide goals: (a) all children ready for school; (b) all third-graders can read at grade level; (c) all racial and economic gaps between students are closed; (d) all students are ready for career and college; and (e) all students graduate from high school. The new requirement calls for equitable teacher distribution to be integrated into these plans. Further, the Commissioner is authorized to intervene in districts failing to make sufficient progress. After three years, the Commissioner may require a district or charter schools to use up to 2% of its general education revenue to implement targeted strategies and practices.

To improve recruitment of teachers for high need schools, the plan references grants to paraprofessionals to support their transition to becoming licensed teachers; forgivable loans to teachers to serve in high need schools; and a proposal to create “Certificates of Advanced Professional Study,” coupled with loans, to build teacher expertise in shortage and high needs areas.

Policy analysts have also recognized that persuasion can serve as a policy tool (McDonnell, 2004), and the Minnesota plan embraces this implement as well. In addition to the emphasis on consciousness raising with respect to the educational influences of race and class the plan references a campaign to improve public perception of teaching as a career and to engage local communities in discussion of equity-related issues.

Addressing multiple aspects of teacher equity. The plan also provides evidence of attending to multiple aspects of the equity problem. Certainly the distribution of capable teachers is a high value target for many of the strategies. But the plan also treats equity from an instructional perspective by emphasizing greater attention to issues of race and class among all educators, and it calls for increased attention to the development of cultural competence and responsiveness in both preservice and continuing teacher education. The proposal to assist paraprofessionals in becoming teachers improves the diversity of workforce composition because many paraprofessionals are from minority backgrounds. And, the plan contains an innovative proposal to develop and use a teacher class and student assignment auditing tool as part of regular needs assessment at the school level: “This new tool...will facilitate the collection of data that will allow schools and their districts to

analyze which students have new teachers, unlicensed teachers, out-of-field teachers and ineffective teachers and for how many years” (p. 30).

The plan concludes with a recognition that funding and resource allocation are crucial, calling for continued stakeholder engagement to work on improved funding; continued study of the distribution and use of funds to support disadvantaged youth; identification of investments to decrease funding disparities, particularly for small rural districts; and expanded support for education programs at schools serving Native-American children.

Overall, then, the plan is exemplary in its wide-ranging attention to aspects of the teacher equity problem, its balanced use of multiple policy tools, its targeting to schools most in need, and the investment in resources to remediate the inequitable distribution of teachers. The plan emphasizes the continuing use of data to pinpoint problems and to track strategies, includes timelines for the accomplishment of goals, and integrates these plans into the overall and ongoing effort to improve the public school system. At the same time, the state has created a robust charter school sector, which it includes in the overall efforts to promote greater teacher equity.

Nevada: An emerging fiscal commitment to equity. Nevada, along with Delaware, is a relatively small state in terms of overall population and number of districts in the state. Nevada educates over 473,000 students in 17 districts. The student body is 5.5% Asian, 43% Hispanic, 11% African-American, and 33% white. Two districts—Clark and Washoe Counties—account for over 83% of all students, with over 70% minority. Las Vegas in Clark County, now the fifth largest school district in the country, has experienced rapid growth in recent years and over 60% of Clark County students are eligible for the FRL program.¹³ The state capitol, Reno, is located in Washoe County. Other districts in the state are sparsely populated, featuring small communities oriented to farming, ranching, and recreation.

The school finance system in Nevada lags behind many states in overall expenditures, with teacher salaries just below the national median. At the same time, there is relatively little inter-district disparity in average salaries, so the prospects for losing teachers involve other states in the region. Nevada’s unadjusted per pupil revenue of \$9,457 is below the national average of \$12,331 but is roughly comparable with surrounding western states.

At first glance, Nevada’s teacher equity plan (Nevada Department of Education, 2015) is unremarkable. The plan features just three “components” directed respectively to developing principals to work in high need schools; developing teachers to work in such schools; and providing fiscal resources to support the other components. But the plan is significant for the targeted commitment of resources that hold promise for improving access to capable teachers.

Targeting schools for attention. Unlike the Delaware plan, Nevada has identified schools based on their performance and their student composition. Specifically, they track on four student characteristics: student poverty, minority status, English language learners, and students with individualized educational plans. Then, based on student achievement data, schools are placed into performance groups that provide multi-tiered support for differentiated school improvement. Schools are identified for self-support, which provides autonomy and possible use in assisting other schools; coordinated support, which involves somewhat greater oversight and accountability; priority and accelerated support, indicating schools eligible for technical assistance, additional funds, and possible designation as turnaround schools. The plan specifically identifies 78 underperforming schools in the state, of which 42 are in Clark County.

¹³ See the state department of education’s website at http://www.doe.nv.gov/http://www.doe.nv.gov/Schools_Districts/Nevada_Schools_and_District_Information

Based on stakeholder input the plan notes the many factors that influence where teachers desire to teach. The plan then concentrates on improving how school administrators and teachers are recruited and supported. Particular strategies include improving data collection and analysis in order to track where educators are teaching; improving educator recruitment, development, and evaluation based on changes to certain licensure and program requirements; and emphasizing more strategic placement of principals and teachers in designated schools. These strategies tend to focus on system-wide improvements, but the state has worked to identify schools that most need attention.

The plan includes some details on how system-wide reforms are joined to particular schools. There is language suggesting that principals be “matched” to schools and provided mentors and coaches, presumably to support their leadership in those schools. The plan references alignment with standards of various kinds, including a “systemic learner-centered infrastructure,” a concept that is never defined nor explained. At this point, the plan looks a good deal like what many of the states are proposing. States routinely adjust licensure requirements, standards, and alignment of various instruments to promote greater coherence, and so forth. Such measures on their face seem to offer scant likelihood of addressing deep problems of teacher equity.

Commitment to fiscal equity. But the final component of the Nevada plan, “fiscal resources,” introduces some remarkable features, described in greater detail in Nevada’s consolidated ESSA plan (Nevada Department of Education, 2017a). The 2015 Legislative Session provided an appropriation of \$340 million for close to two dozen new programs. Of the six key goals in the ESSA plan, one includes, “all students served by effective educators.” Beginning with a frank acknowledgement of existing inequities and lagging achievement, the plan states a goal of “becoming the fastest improving state in the nation.” We do not review all aspects of the “new Nevada plan” (Nevada Department of Education, 2017b) but a précis of the initiatives devoted to teachers and principals reveals an exceptional commitment.

Among the newly funded programs directed to recruiting, preparing, developing, and retaining teachers are the Great Teaching and Leading fund, a competitive grant program that provided \$4.2 million in 2016 to 13 entities to develop programs to recruit and retain teachers and principals; the Teach Nevada Scholarships program, which supplies \$2.5 million for tuition assistance for preservice teaching candidates together with incentive pay for teaching in shortage areas or Title I and underperforming schools; and New Teacher Incentives, funded at \$10 million annually to districts, to supply up to \$5,000 in incentive pay to recruit and retain teachers in underperforming schools. And, a new office in the state department, the Division of Educator Effectiveness, oversees these and related programs, underscoring the long-term commitment to these initiatives. These new programs alone signify commitments that extend well beyond what most other states are doing, but this is just the start.

In addition, the state has established new funding sources for schools serving low income and minority children. The Victory Schools program (Senate Bill 432) is a whole school intervention funded at \$50 million over the biennium, targeted to schools in the 20 poorest zip codes in the state. This program features a medley of interventions that schools can adopt including pre-K programs, full day Kindergarten, summer academies, teacher professional development, recruitment/retention incentives, extended day, reading skills centers, and others. This program was launched in 2014-15 and has expanded steadily to the present. As well, Senate Bills 405 and 515 launched the “Zoom Schools” program, which is investing \$100 million over the biennium for low performing schools including those with concentrations of English language learners. This initiative also funds pre-K and full kindergarten with reduced class sizes, as well as Reading Centers, Summer Academy, and Intersession programs.

While these programs target a range of incentives, the state also is developing accountability mechanisms to improve low performing schools. One example is the Underperforming Schools Turnaround program, which may designate schools that are persistently low-performing. This program provides funds for additional staffing, professional development, implementation of new instructional practices, and leadership development, among others. And yet another option is the statewide Nevada Achievement School District into which low-performing schools may be placed. This district has its own Superintendent who manages transformation, and it has quality school operators to assist the designated schools in making improvements.

These programs indicate a strong emphasis on interventions in the early years but other initiatives are also involved. Another program funds social worker positions in schools serving low income children, the commissioning of a school climate/socio-emotional climate survey to assist social workers with needs assessment, commitment to expand Advanced Placement courses in high schools across the state and to increase career and technical education offerings, and the development of a teacher evaluation system that will allow the state to identify distributions of teachers across schools based on evidence of their effectiveness.

Other developments in the plan detail measures the state is taking to create data management systems, testing and assessment programs, and accountability mechanisms that track on a wide variety of indicators. But a noteworthy feature of the plan is the choice of capacity-building and incentives-oriented policies to develop and direct the educator workforce. The depth of the fiscal commitment is extraordinary, together with the systematic targeting of new resources to communities, districts, schools, and students most in need. The state already has commissioned an evaluation of the new programs, which generally provides a positive report on early implementation. The state then appears serious about studying these new programs to gauge success and to provide a basis for continuous improvement.

Taken together, these three cases make a point not captured in our coding. The underlying fundamentals matter a great deal. Layering small, modest initiatives atop finance systems that are neither adequate nor fair is unlikely to make headway against problems of equity, including those that implicate teachers. The commonality in these three cases is the commitment to relatively strong fundamentals that then may be supplemented by a range of specific and targeted strategies.

What Other Observations do These Data Suggest?

Missing attention to urban districts. Any such observations, we concede, are in the eye of the beholder, so we offer these in a speculative vein, not as systematic features of our analysis. First, we were somewhat surprised that none of the plans in the 31-state sample made reference to any of the nation's major cities. Many low-income and under-served students are concentrated in large cities which also have served as sites for much of the research documenting disparities in access to capable teachers. We found no evidence of specific partnerships between state and regional agencies and large urban districts aimed at problems of teacher equity, despite the salience of such locales for equity issues.

The problem of within-school disparities in access to capable teachers. While inter-district disparities in access to qualified teachers is clearly a significant factor, suggesting remedies at that level of the system (Cowan, Goldhaber, & Theobald, 2017; Goldhaber, Lavery, & Theobald, 2015; Goldhaber, Quince, & Theobald, 2018), the studies that reveal within-school disparities in access also deserve attention (see for example Kim, Frank, & Spillane, 2018). We saw relatively little emphasis on this aspect of the problem in the plans (or in the federal guidance, for that matter). The issue most likely implicates leadership at the school level, whether on the part of the principal or

of teacher leaders, such that teacher equity becomes an ongoing concern among school faculties. Raising awareness of this issue may be something that state and local policy can influence.

Little emphasis on technology, preparation, or mentoring. Likewise, we expected that in cases where rural isolation and poverty were contributing factors in access, states might be investing aggressively in technological solutions, particularly well-crafted and supported online teaching coupled with local scaffolding. We found only a handful of references to strategies of this kind among the 31 plans. We also expected to see considerable emphasis on “grow your own” programs featuring partnerships between universities and school districts. Here too we found some examples but relatively little emphasis as a leading recruitment strategy for districts that historically have struggled to attract and hold teachers. Only five states proposed such strategies, without much indication of commitment for funding and follow through. Proposals for mentoring and induction programs did receive attention, a worthwhile strategy in light of the research support for such efforts (Ingersoll & Strong, 2011), yet over half the states we sampled contained no references to such programs.

Potential import of working conditions. The finding in the research literature that working conditions matter a good deal for teacher retention might have occasioned greater attention to strategies explicitly aimed at improving such conditions in schools serving low income and underserved students. The primary response here was an emphasis on recruiting, preparing, placing, and supporting school principals in such schools, a strategy indicated in 16 of the state plans. This seems quite worthwhile insofar as the school principal plays a key role in developing positive school-wide conditions that in turn help schools retain teachers and stabilize staffing. But the plans included few other references to strategies aimed at this aspect of the problem. Certainly some districts and schools are beginning to make more use of faculty and staff surveys to monitor working conditions, a useful development (Ferguson & Hirsch, 2014). But specific strategies to improve such conditions were rarely mentioned in the 31 plans. As well, policymakers in past eras periodically experimented with the development of career-related positions to attract and hold master teachers, but this policy theme apparently enjoys little currency at the moment. Codes such as CAREER or COACH make rare appearance in the data.

Modest evidence of policy entrepreneurship. Finally, when states are invited to prepare policy proposals, there is scope for new ideas, novel approaches to systematic problems. Prospects for policy entrepreneurship constitute one argument in favor of encouraging state responses. We found several instances of such activity that appear worth mention. One example is Connecticut’s creation of a network of teacher leaders that the state can consult with on a variety of issues (Connecticut State Department of Education, 2015). Their Educator Network comprises a database of experienced teachers to review and provide feedback on such matters as the development of rubrics linked to the state’s Common Core of Teaching. To the extent that the state draws on this network to inform policymakers about teacher equity issues, this looks to be a useful strategy. Another instance, Massachusetts is developing a “student learning experience report” to collect and analyze data on student assignment to teachers over their years of schooling. The plan states, “...rather than moving teachers around, we focus on students and on purposefully assigning them to educators. This would ensure that students are not disproportionately taught by inexperienced, unqualified, chronically absent, or out-of-field teachers” (Massachusetts Department of Elementary and Secondary Education, 2015, p. 32). While this reporting device does not address between-district disparities in access, it constitutes a new, fine-grained way to ensure equitable access within schools, an important component of equitable access.

Yet another innovative idea appeared in the Mississippi plan, which prefaced its initiatives with the blunt perception that, "...the state is desperate for warm bodies in classrooms" (Mississippi Department of Education, 2015, p. 24). The State Department of Education will launch a "Grow Your Own Educators" program aimed at creating a pipeline of teachers for the focus school districts in the program. This initiative involves a number of strands including assistant teacher programs, partnerships to recruit and upgrade non-licensed teachers and recruitment of other non-licensed employees (e.g., instructional aides) who may desire to become teachers. The program aims to bring parents, universities, school districts, and community organizations into partnerships to help recruit and retain teachers in districts facing shortages.

Other examples included development of an English Learner Data Tool in the Colorado plan to assist districts in analyzing patterns and trends for this important population of students. And Nebraska was one of the few plans that included pre-school educators as part of their overall strategic approach, a potentially valuable addition that was not explicitly mentioned in the federal guidance. In the coming years, emphasis on early childhood education and its articulation with the K-12 sector may increase in salience.

Study Limitations

Several limitations of this study should be noted. First, state plans are not actions in two senses. First, plans may not be enacted at all, particularly if they function more as proposals for what might be done at some future time when circumstances permit. As well, plans do not include the trials and tribulations of implementation, which often alter and not infrequently confound initial plans. State efforts to address inequities in access to capable teachers are more properly understood as an unfolding process than as an event (i.e., submitting a plan). Here, we only have access to what states were proposing at a point in time, with relative degrees of commitment. On the other hand, states are unlikely to implement what has not been proposed, so the plans are at least moderately revealing of state intentions in this policy area.

Another problem concerns how to weight strategies. We did not apply weights to account for the relative human and fiscal capital required by each proposed strategy, so strategies that might be quite demanding and significant received the same code as strategies that were quite limited. We considered applying weights but after some experimenting decided this was infeasible. Our codes then did not account for the grain size of a strategy. For example, a state might propose to offer a job fair to recruit more teachers or publish a newsletter with job openings and information. Or, a state might propose to fund an expansion and redesign of a statewide induction program for new teachers with technical assistance from regional centers. Each of these strategies would receive a code without any indication of the weight or significance of the strategy. This must be reckoned a limitation of our coding strategy.

Finally, in considering the strength of a state's policy response on this issue, we also must take into account the salience of the problem in the state. In states such as California, New York, Michigan, and Texas, for example, that have large urban areas together with rurally isolated districts, the teacher distribution problem is more severe than in states that do not feature such demographic and geographic conditions. So too with states featuring more vs. less diverse student populations. Here too we did not weight states on this dimension in order to provide context for our ratings. We would expect robust plans primarily in states where this particular policy problem is paramount. Still, the issue of equitable access to qualified and capable teachers is present to some degree in all states, meriting attention that is proportional to the problem. Our quality ratings of the state plans do not take this factor into account, but we certainly noticed that some plans receiving a low overall rating also involved less troubling cases of inequity.

Discussion

One policy tool used in federal systems is a planning mandate, where central levels of governance require plans from lower levels to remedy specified problems. This paper contributes a study of one case of such policy. A planning mandate has four advantages. It provides (1) low-cost (2) attention to the policy problem (3) under conditions of uncertainty about solutions, while (4) respecting local control of education. The requirement to conduct careful study of the contours of the policy problem in particular locales serves to increase attention to the problem with the potential of persuading state policymakers to respond with initiatives that are tailored to local circumstances. One-size fits all solutions are likely to be ineffective and inefficient, so the federal government calls on localities to develop plans that are relevant and targeted to their specific circumstances.

The main disadvantage of planning as a policy mandate is its weakness in stimulating strong responses. Absent use of sanctions and incentives, planning is likely to provide modest responses at best. States are likely to respond with some mix of compliance-oriented and problem-solving strategies, a common conclusion in the policy implementation literature (Berman & McLaughlin, 1975a, b).

This study confirms this general portrait. In response to the planning mandate, states are building datasets that track problems of teacher inequity. The issue is on states' agenda in this sense at least, a positive development. The mandate may also be contributing to the general climate of opinion out of which policy is shaped. But as Kingdon (1984) has argued, the availability of alternatives for action is one factor supporting sustained attention to a policy problem, and the evidence here is less clear. States were proposing many alternatives and many of these fell short of being relevant, well targeted, and fully committed to the problems of teacher equity. States naturally highlighted activities they have been working on, many of which seem worthwhile in their own terms but appear remote from the "root causes" contributing to the inequitable distribution of teachers. As emphasis in the descriptive codes made clear, states do appear to be positioning themselves to gather and track data that define the problem. And strong teacher evaluation systems potentially contribute a valuable indicator of teacher quality that can be used to track teacher distributions. Proposals in this vein, while calculated to discern the contours of the problems, nevertheless provide relatively little leverage on solutions. Good to have precise definitions of a policy problem, better to have workable solutions planned and underway.

But the general policy logic associated with many of the proposed strategies tended to be one of "lifting all boats," in the sense that improvements in general might benefit low-income and under-served students along with all other students. Improvements in general also have obvious political appeal, but if the issue is rather conceived as one of gaps in resources, opportunities, and achievement, then a "closing gaps" policy logic is needed. Districts and schools serving concentrations of low-income and under-served students must receive targeted attention. The core issue concerns how to attract, develop, and retain capable teachers in such schools and districts.

A factor that clearly circumscribed the range and reach of strategies was the jurisdictional limits within which state departments are working (Baker & Weber, 2016). SEAs are charged with developing the plans but have no direct control over such matters as school funding formulas or district boundaries that continue segregation of students along lines of class and race. Plans then had to accommodate what state agencies have some control over. In some happy circumstances, states already were moving on some of the fundamental issues but absent such initiative, SEAs could not manufacture the needed authority and resources. And, lack of direct attention to the cities was most notable. Our political history has long featured tensions between state governments and the large cities that populate many states, a tendency that may explain the absence of strong state-urban

partnerships. But the most pressing issues of educational inequity reside arguably in our cities and they made no appearance in these plans. This issue seems worth further scrutiny by policymakers and policy scholars alike.

The state case studies provide a glimpse of what states can do to address inequities in access to capable teachers. The lessons there do not favor any particular strategy—mentoring or professional development or data use. Rather, these three states are working on many strategies simultaneously, which constitute one measure of commitment to the problems of teacher equity. There is probably a twofold lesson for policymakers in other states. First, as articulated by Adamson and Darling-Hammond (2011), the likelihood of great effects is lessened when modest, piecemeal efforts are layered over fundamental inequities in resources. “Root causes” typically have to do with such matters, which unaddressed will continue to drive inequity. And second, states must think in terms of assembling a large, preferably interrelated set of initiatives that together hold some promise for securing good teachers for schools serving low income and under-served students. In the coming years we will need to see if the needle has moved to the advantage of students who most need stable, dedicated, and inspired teaching.

Appendix

Appendix A: Descriptive Codes for State Strategies

Code	Strategy	Description
REBURDIST	Reorganization of Bureaucracy at District Level	Indication of hiring or reorganization of personnel at the district level
TECH	Technology	Efforts to create/extend technologies that increase student access to learning opportunities
TECHAST	Technical Assistance	State or district assists in capacity building at the school level
TOOL	Use of Tools	State suggests the creation and use of specific tools to help facilitate the implementation of other strategies
ALTCERT1	Alternative Certification Partnership	Partnership with already-established alternative certification program
ALTCERT2	State-Run Alternative Certification Program	Proposal to create and/or fund a new alternative certification program
HIRING	Hiring Practices or Admissions Standards	Efforts to make hiring practices more timely, efficient, and effective
PUBREL	Public relations	Planned positive interactions with the public and media
SALARY	Increase Salary	References to raising salary strategically
TCHINCREC	Teaching Incentives for Recruitment	Specific incentive programs proposed (housing stipend, loan forgiveness, pay differentials, etc.) intended to encourage teachers to seek and accept jobs in underserved areas
TCHREC	Teacher Recruitment	General strategies to enhance the recruitment of teachers (other than supplying incentives)
TESTPREP	Test Preparation	Support of educators' efforts to prepare for test relevant to certification or endorsement
COND	Working Conditions	General suggestion of improvement of working conditions
INDUCT	Induction	Establishment of induction programs for new teachers
MENTOR	Mentorship Program	Establishment of teacher mentor programs for new teachers
SUPPORT	Wraparound Support Services	Suggestions of additional staff or resources to support schools' provision of fully-functioning welfare services for children to address all needs
TCHCAREER	Teacher Career Development	Efforts associated with developing career progression or pathways for teachers
Code	Strategy	Description

TCHINC-RET	Teacher Incentives for Retention	Specific incentive programs proposed (housing stipend, loan forgiveness, pay differentials, etc.) that intended to encourage teachers to stay in jobs in underserved areas
COLLAB	Collaboration	Explicit mentions of teacher collaboration as a method of capacity building
COMMUNITY	Community Involvement	Reference to reaching out to or serving community
SCHLEAD	School Leadership Policy Implementation	References to development of school-level leaders around their ability to implement the state equity plan
STUPLACE	Student Placement	Description of the distribution of students to teachers
\$USE	Use of Funds	Enhancing capabilities associated with more efficient, effective identification and uses of funds to support teacher equity goals.
ANALYSIS	Data Collection and Analysis	Conduct of studies, inquiries, data gathering (analysis) related to issues of teacher equity
GENCAP	General Capacity Building	Efforts to build, create, or enhance (general) capacity directed to some aspect of the educational system.
GOVREL	Government Relations	Efforts on part of the state to strengthen relations through collaboration, coordination, consultation with other units in the intergovernmental system
INFO	Sharing Information	Efforts to share information about issues relevant to equitable teacher distribution. May be used in conjunction with other strategies that the information attempts to communicate.
REBUR-STATE	Reorganization of Bureaucracy at State Level	Indication of hiring or reorganization of personnel at the district or state level
COACH	Instructional Coaches	Mention of the hiring, training, or deployment of instructional coaches to support instruction
PROFDEV	Professional Development	Provision of professional development to teachers on wide range of topics
TCHPREP	Teacher Preparation	Suggestion of improvement of or collaboration with teacher preparation programs
CERTREQ	Certification Requirements	Changes to teacher certification requirements
CREDLS	Micro-credentials or Additional Certifications	Mention of encouraging teachers to obtain additional formal certificates or expertise
EVALUATION	Teacher Evaluation	Mention of a teacher evaluation/accountability system in specific reference to problems of teacher equity
TCHSTAND	Teacher Standards	Efforts to develop and use standards for teaching to enhance the profession, improve instruction

Appendix B: Quality Criteria for Rating State Plans

Specific, concrete actions. Does the plan offer specific, concrete actions that they will or plan to undertake?

Clear relevance to equity issues. Does the plan include strategies that are clearly relevant to identified issues of equitable access to qualified teachers?

Multi-pronged approaches. Does the plan offer a comprehensive set of strategies aimed at multiple aspects of the teacher equity problem?

Data-based targeting. Does the plan target strategies based on careful analysis of relevant data?

Identified locales. Does the plan identify specific districts and schools where equity problems cluster and are most pressing?

Resource provision. Does the plan indicate what resources (fiscal, material, human) will support implementation of key strategies?

Rating	Criteria*
1	<ol style="list-style-type: none"> 1. Feature specific, concrete <u>actions</u> they are or will be undertaking 2. Includes large proportion of strategies <u>clearly relevant</u> to teacher equity 3. Provide detailed and multi-pronged approaches that address <u>many aspects</u> of teacher equity. 4. Identify strategies based on careful <u>analysis of data</u> 5. <u>Target</u> specific schools and districts for attention where equity problems cluster and are most pressing 6. Indicate what <u>resources</u> (fiscal, material, human) will support implementation of key strategies
2	<ol style="list-style-type: none"> 1. Provide substantial indication of specific <u>actions</u> they will undertake 2. Includes most of strategies <u>clearly relevant</u> to teacher equity 3. Indicates some range of strategies addressing <u>many aspects</u> of teacher equity 4. Include solid indication of <u>data analysis</u> used to identify and target equity problems 5. May or may not include references to specific, <u>targeted</u>, schools or districts where equity problems exist 6. Supply some indication of resources, available or planned, to implement strategies
3	<ol style="list-style-type: none"> 1. Include some specific <u>actions</u> to be undertaken, mixed with some more vague indications 2. Includes some strategies <u>clearly relevant</u> to teacher equity 3. Address a limited <u>set of the aspects</u> of equity-related problems 4. Provide some indication of <u>data-based</u> analyses that pinpoint equity issues 5. Indicate little or no <u>targeting</u> of strategies to particular schools or districts 6. Offer some attention to <u>resources</u>, planned or available, for implementing strategies

Rating	Criteria*
4	<ol style="list-style-type: none"> 1. Include as strategies what have been recommended or considered without indications of actual commitment to <u>actions</u> 2. Feature general or generic strategies that are <u>unrelated</u> to problems of teacher equity 3. Address a small <u>range of aspects</u> of equity-related problems 4. Offer little or no attention to careful <u>analysis of data</u> for use in identifying equity problems 5. Provide no evidence of <u>targeting</u> to specific schools and districts where equity problems cluster 6. Include little or no attention to <u>resources</u> needed to implement strategies

* In applying these criteria, we judged the preponderance of evidence in each case, meaning that a state may be high on most but not all of the criteria yet receive a ranking based on the sum of the evidence rather than downgrading a state if the evidence on one (or two) of the criteria appears weak.

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About the Authors

Gary Sykes

Educational Testing Service

gsykes@ets.org

Gary Sykes is a principal research scientist in the Understanding Teaching Quality Center at Educational Testing Service (ETS). He joined ETS after 25 years on the faculty at Michigan State University, where he concentrated his scholarly and advocacy-oriented work on teaching, teacher education, and policy directed to teaching. He was active in the launch of the National Board for Professional Teaching Standards and served as research director for the Holmes Group, a network of teacher education institutions devoted to the reform of teacher education. His publications include the editorship with Lee Shulman of the *Handbook of Teaching and Policy* (1983), with Linda Darling-Hammond of *Teaching as the Learning Profession* (1999), and with Barbara Schneider and David Plank of the *Handbook of Education Policy Research* (2009).

Kacy Martin

Michigan State University

kmartin@msu.edu

After completing a bachelor and master's degrees at the University of Michigan, Kacy Martin taught in the Chicago Public Schools, serving on the Instructional Leadership Team and creating professional learning cycles to improve teacher practices in reading instruction. Her research focuses on the impact of parent social networks on school choice in urban districts, the relationship between urban planning and school enrollment, and the politics of education finance at the local and state levels.

About the Guest Editors

Linda Darling-Hammond

Learning Policy Institute

ldh@learningpolicyinstitute.org

Dr. Linda Darling-Hammond is President of the Learning Policy Institute and Charles E. Ducommun Professor of Education Emeritus at Stanford University. She has conducted extensive research on issues of educator supply, demand, and quality. Among her award-winning publications in this area are *What Matters Most: Teaching for America's Future*; *Teaching as the Learning Profession*; *Powerful Teacher Education*; and *Preparing Teachers for a Changing World: What Teachers Should Learn and Be Able to Do*.

Anne Podolsky

Learning Policy Institute

apodolsky@learningpolicyinstitute.org

Anne Podolsky is a Researcher and Policy Analyst at the Learning Policy Institute. Her research focuses on improving educational opportunities and outcomes, especially for students from underserved communities.

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Please send errata notes to Audrey Amrein-Beardsley at audrey.beardsley@asu.edu

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