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Research & Learning Institute™

A Leak in the Pipeline:

How Hiring Bias Might Be Compounding the Teacher Shortage

Table of Contents

Foreword

So Why Does It Matter How We Hire Teachers?

Xianxuan Xu, PhD and James Stronge, PhD
Stronge and Associates Educational Consulting, LLC

School and district leaders continuously engage in recruitment efforts to fill vacancies resulting from teacher retirement, turnover, or school expansion. Through quality recruitment and selection, effective school leaders address vacancies as a growth opportunity to put new, high-caliber teachers in classrooms. Simply stated, the purpose of recruitment is to provide an adequate quantity of quality applicants. Recruitment is not hiring; rather, it is making available the right mix of a rich and diverse set of effective applicants to be considered for hiring. Unfortunately, when recruitment runs short and results in inadequate quality choices, districts and schools address teaching vacancies with undesirable options: hiring individuals who are insufficiently prepared to teach, increasing class sizes with currently available teachers, cancelling classes, using short-term substitutes, or assigning teachers from other fields (Sutcher, Darling-Hammond, & Carver-Thomas, 2016). These solutions undermine the quality of teaching and learning. Fortunately, the good news is that effective recruitment mitigates the negative effects of teacher shortages and creates a more sustainable supply of well-prepared, quality teachers.

An essential question to answer to ensure effective recruitment is: What are the best supply sources of teachers? The United States produces new teachers through large numbers of accessible, widely dispersed teacher preparation programs. Although not evenly distributed, there is an average of 25 teacher preparation programs per state, usually in departments or schools of education. Despite the abundance of college/university level teacher preparation programs, this traditional pipeline of college students with freshly minted education degrees only constitutes one source for new teachers. Ingersoll (2011) found that the supply source for math and science is composed of newly qualified teachers with non-education degrees (26%), newly qualified with both education and non-education degrees (7%), newly qualified with only education degrees (20%), and reserve pool (i.e., former teachers who left teaching to return later) (47%). Former teachers who come back to the teaching profession count for an important source of new hires in schools.
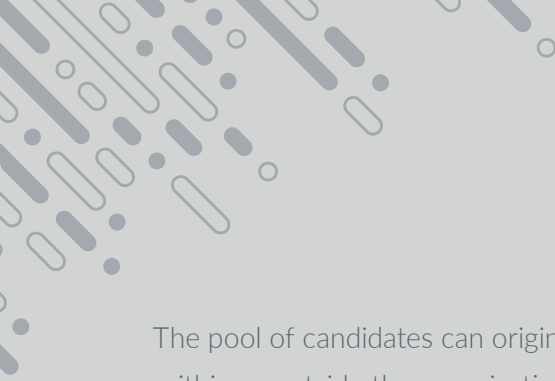
The pool of candidates can originate from within or outside the organization/community. Additionally, computerized resume databases have experienced an explosive growth in popularity. Today, many school leaders tap into online hiring tools to reach a larger teacher audience. In addition, job fairs are an important source of job candidates. And, of course, self-applying (i.e., "walk-in" applicants) remain a large and viable source for teacher applicants. However, a keen note of caution is in order here: All teacher applicants are not equal (a fact we well know), and neither are all teacher preparation programs or all other teacher sources.

Given growing hiring needs, in conjunction with the variability in teacher recruitment sources, the fundamental question to ask is: How do I find, sort, and select quality teacher applicants? Unfortunately, research findings, to date, provide us with only partial answers, as the evidence regarding effectiveness of the major teacher sources is limited and mixed. For instance, we cannot assume a job fair is more effective in generating a quality candidate pool simply because it is more expensive or it is 500 miles away. Yet, it is important not to hire only local applicants as we need rich, diverse applicants to have a rich, diverse teaching force. We simply need to cast a broad net to yield the all-important adequate quantity of quality applicants.

One fundamental issue that we do know is that no matter the source of teacher applicants, the pivotal step is to select the right people from the applicant pool. It is essential to select teachers based squarely on valid, research-based teacher quality standards in a systematic and consistent manner. Locating and acquiring what we believe to be a quality applicant pool is not sufficient; rather, how we discern, sort, and select from among the available applicants is the deciding factor for onboarding talented teachers. Thus, having — and using — a research-guided, field-tested, standards-based, and systematic teacher select protocol matters – and it matters greatly.

- *What strategies do we use for screening the applicants to determine which are best qualified and most promising?*
- *How do we mine the applicant credentials for distinguishing features we value in effective teachers?*
- *Do we use structured, experiential-based interview protocols?*
- *Is there a performance component (e.g., demonstration lesson) included?*
- *When and how do we solicit reference information? Does the reference process truly provide valuable, differentiating, and job-relevant information or is it merely a function where all applicants appear to be wonderful?*

All these factors impact the quality of hiring. And without this type of comprehensive teacher selection system, we are merely guessing at who is quality and who is not.

Teacher effectiveness is an elusive concept and a multi-faceted concept, incorporating all aspects from personality to professional knowledge to technical skills (Stronge, 2007, 2018). It is of supreme importance to identify the qualities that really matter in an educator's effectiveness and purposefully look for those qualities during the hiring process. How we hire leads to who we hire — and this is why teacher recruitment and teacher selection matter greatly. In the report you are about to read, you will gain insights of the current status of teacher recruitment and selection. The report sheds light upon how we should proceed from where we are to better our hiring practices in schools.

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Ingersoll, R. M. (2011). Do we produce enough mathematics and science teachers?. Phi Delta Kappan, 92(6), 37-41.

Stronge, J. H. (2007). Qualities of effective teachers (2nd ed.). Alexandria, VA: Association of Supervision and Curriculum Development.

Stronge, J. H. (2018). Qualities of effective teachers (3rd ed.). Alexandria, VA: Association of Supervision and Curriculum Development.

Sutcher, L., Darling-Hammond, L., & Carver-Thomas, D. (2016). A coming crisis in teaching? Teacher supply, demand, and shortages in the U.S. Palo Alto, CA: Learning Policy Institute.

About the Institute

The Frontline Research & Learning Institute generates data-driven research, resources and observations to support and advance the educational community. The Institute's research is powered by Frontline Education's data and analytic capabilities in partnership with over 12,00 K-12 organizations and several million users nationwide. The Institute's research reports and analysis are designed to provide practical insights for teachers and leaders as well as benchmarks to inform strategic decision-making within their organizations.

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With Gratitude

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Executive Summary

Urgent reports about teacher shortages seem to appear in research journals and news feeds with increasing regularity. While some decry the tumultuous public policy environment, others blame low teacher pay. Still others point to school cultures obsessed with testing or overly scripted pedagogy as the reason why fewer people wish to go into teaching. While some of these issues are undoubtedly real challenges faced by schools and districts — and they may be accurate descriptions of phenomena that can be captured through small-scale case studies — we examine what data from a sample of schools and districts across the U.S. say about national trends and local challenges.

Using a data set composed of recruiting and hiring information from school district partners in over 800 school districts across 45 states, we set out to examine widespread trends in practices that might clarify what is happening when educators try to enter the teaching force or change jobs. We also investigated what happens right after educators enter the workforce to better understand how hiring practices could be influencing retention.

When it comes to the national dialogue about a looming teacher shortage, we found some data to support the claim that the supply of certified teacher applicants for open positions has a relatively low ratio of applications for open positions.

Figure 1: Avg. Jobs Posted vs. Avg. Applications per Job Post (2016-2017 School Year)
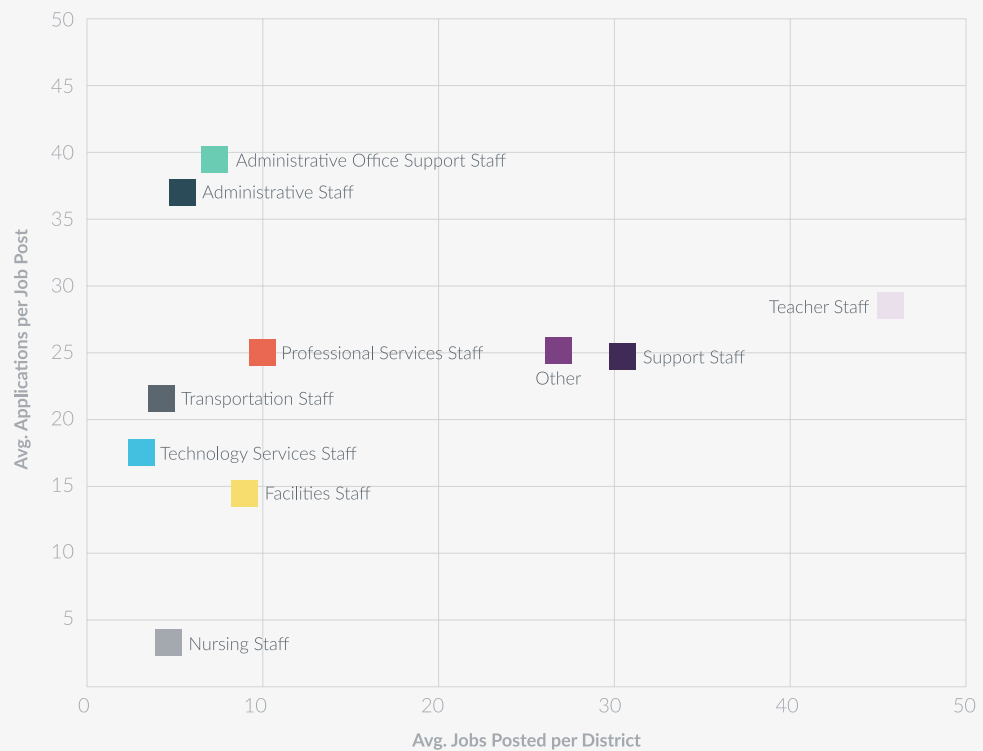
But when it comes to educators looking for the jobs, the challenge appears more nuanced than a simple shortage of supply. We reviewed the sources of applicants versus the sources of hires and found something surprising. *While responses to job board postings consistently generated about 40% of active-license candidate applications, school districts selected only about 12% of the applicants from those pipelines. By contrast, while about 15% of applications came from referrals, over 30% of educators were hired from those sources.*

These trends may not be surprising — and may even suggest that human resources and building leaders are selecting individuals they know (or at least believe) will be a good fit for their school environment. However, our data also show that about one third of educators leave their positions for other teaching positions within the first three years of teaching — and another 20% leave for another school at least once by their sixth year of teaching.

The field is out[1] on whether turnover is really growing generationally. By some calculations, turnover among millennials is actually lower than that of previous generations. For educators, however, the consequences of turnover may be even more dire. Students whose teachers consistently have less than three years of

15%
of applications

40%
of applications

Applicant Source: Job board

Applicant Pipelines

Applicant Source: Referral

12%
Hired

30%
Hired

Key Finding:

While responses to job board postings consistently generated about 40% of active-license candidate applications, school districts selected only about 12% of the applicants from those pipelines. By contrast, while about 15% of applications came from referrals, over 30% of educators were hired from those sources.

experience or whose principals turnover frequently[2] are more likely to suffer poor learning outcomes. The financial costs of turnover are also high: nationwide, we spend about two billion public tax dollars[3] per year on turnover.

This report delves deeply into data to better understand where recruiting and hiring practices are falling short in helping ensure educators and their educator candidates and schools are a good fit for one another. It explores the detrimental role that likeability bias plays in the hiring process, and how word of mouth too often trumps other important considerations in the hiring process. Finally, we contemplate ways the data point to how schools can keep good teachers longer.

Nationwide, we spend about **two billion public tax dollars per year** on turnover.

Although teaching may be decreasing in popularity[4] as a college major, many school districts are failing to tap into a robust supply of educators that could be well-qualified for open positions. As the total pipeline constricts, it will be increasingly essential to adopt smarter, more efficient strategies to recruit and hire teachers. And it is incumbent upon school leaders to do what they can to maximize teacher fit, minimize turnover, and improve student outcomes.

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[1] Ben Casselman, "Enough Already About The Job-Hopping Millennials," https://fivethirtyeight.com/features/enough-already-about-the-job-hopping-millennials/, (May 5, 2015).

[2] Ronfeldt, Loeb, & Wyckoff, "How Teacher Turnover Harms Student Achievement," https://caldercenter.org/sites/default/files/Ronfeldt-et-al.pdf, (January 2012).

[3] Alliance for Excellent Education, "Teacher Attrition Costs United States Up to $2.2 Billion Annually, Says New Alliance Report," https://all4ed.org/press/teacher-attrition-costs-united-states-up-to-2-2-billion-annually-says-new-alliance-report/, (July 17, 2014).

[4] The Chronicle of Higher Education, "Backgrounds and Beliefs of College Freshmen," https://www.chronicle.com/interactives/freshmen-survey, (May 1, 2017).
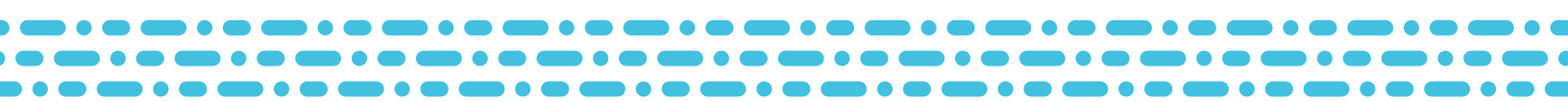
Introduction

As many as half of new teachers do not make it to their sixth year of teaching, according to research[5] by University of Pennsylvania professor Richard Ingersoll. As a result, many educators are leaving their roles before they can realize the strong relationships with peers and managers that are required to achieve continuous improvement and maximize student learning.

Pundits frequently observe that the increasing representation of millennials in the workforce means that education will mirror the trends of the broader workforce. But what if the higher rates of turnover collectively taken for granted — despite their estimated cost of $30 billion[6] to the U.S. economy alone — could be reduced with a more thoughtful and rigorous hiring process? Our data suggest they can.

[5] Richard Ingersoll, "Is There Really a Teacher Shortage?," http://www.gse.upenn.edu/pdf/rmi/Shortage-RMI-09-2003.pdf, (September, 2003).

[6] Amy Adkins, "Millennials: The Job-Hopping Generation," http://news.gallup.com/businessjournal/191459/millennials-job-hopping-generation.aspx, (May 12, 2016).

Why Teachers Are Leaving

A [recent study] [7] demonstrated that students in grade levels with higher teacher turnover tend to score lower in both English language arts and math. The effect was particularly strong in schools with historically underserved student populations — schools with higher proportions of low-performing and black students, which, according to the research, "suggest that there is a disruptive effect of turnover beyond changing the composition in teacher quality."

The case for reducing turnover has been well argued in other settings. Here, we focus on a period that is often overlooked in retention research: the time between application and hiring when important information is captured and used to make decisions about individuals' careers. Helping teachers is not limited to the support they receive after they have been hired. Indeed, thinking about how a teacher fits into an environment only after she or he has been hired is too late. A better hiring process can help ensure that teachers are being matched with the right schools, classrooms and environments from the start.

More should be done to maximize "fit" between an educator and a school community. Through teacher-school fit, we can draw the shortest line from entry to effectiveness, thus increasing the likelihood of a teacher staying and succeeding.

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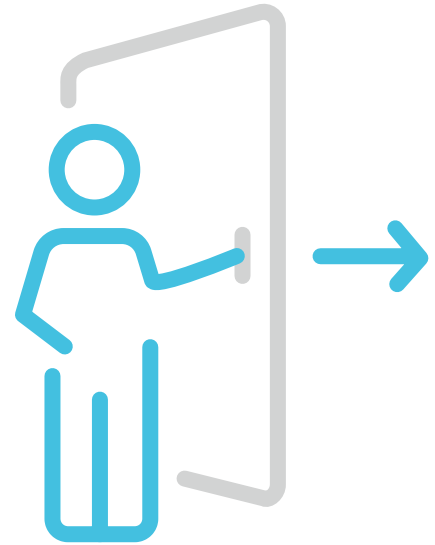
[7] Ronfeldt, Loeb, and Wyckoff, "How Teacher Turnover Harms Student Achievement," https://caldercenter.org/sites/default/files/Ronfeldt-et-al.pdf, (January 2012).

Who You Know

To understand how schools can better account for fit, we had to understand how districts are making their hiring decisions. So, we set out to investigate what specific trends exist and how they might be addressable.

Our data, from school districts across the country, includes de-identified data on recruiting and hiring practices and trends. We analyzed hiring and referral data from 832 public school districts in 45 states and more than 250,000 unique applicants from July 2014 to June 2017. The districts included a sample of urban, suburban, town and rural, and included small, medium and large-sized schools.

Our findings indicate that while school districts are casting a wide net for their teacher pipeline, they are still fishing in a small tributary.
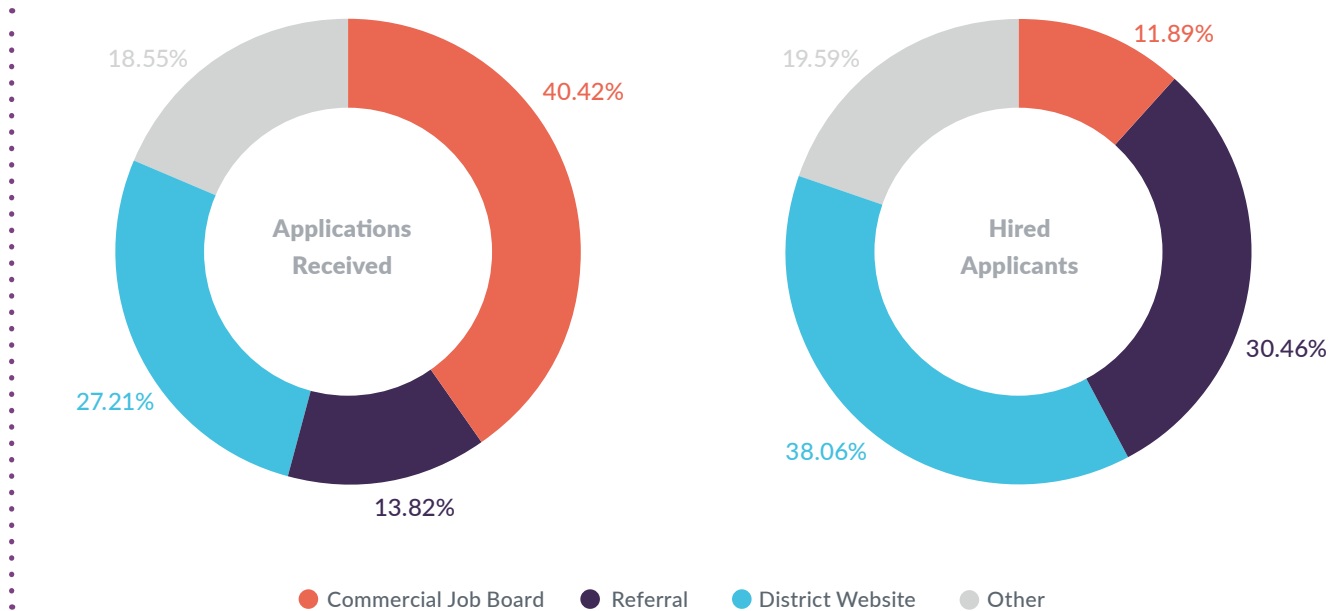
Although over 40% of teaching candidates with active licenses came from commercial job boards (which include sources ranging from all-sector sites like Monster to teacher-specific job aggregators) between July 2014 and June 2017, only about 12% of hires came from those sources. By contrast, just under 15% of candidates came from local referrals, and yet over 30% of candidates hired were from local referrals. At times, local referrals made up just 16% of candidates during the years studied, but they always accounted for a full third of those who were hired.

METHODOLOGY

We examined the data first by looking at general trends in recruiting and hiring to understand how most schools and districts are approaching their core processes for talent acquisition. We looked at the sources of candidates, the number of applicants from each source and the ways that applicants convert to candidates who are interviewed and hired. We discovered that recruitment strategies are more diverse than the decision-making processes.

Figure 2:

Percent of Teachers with Active Certifications

Applications Received: Commercial Job Board 40.42%, Referral 13.82%, District Website 27.21%, Other 18.55%

Hired Applicants: Commercial Job Board 11.89%, Referral 30.46%, District Website 38.06%, Other 19.59%

● Commercial Job Board   ● Referral   ● District Website   ● Other

The majority of hires between 2014 and 2017 – about 38% – came from candidates applying through a district or school website, which they are more likely to visit if they are local, know people in the district or are connected enough to a school to know about open positions. Between referrals and district or school websites, about 68% of educators were hired from "known" sources even though only 41% of applicants hailed from those categories. Candidates are coming to school districts from diverse sources, but districts are largely ignoring opportunities to take advantage of that wide pool in favor of local referrals and, in turn, potentially narrowing their searches to candidates with less diverse backgrounds.

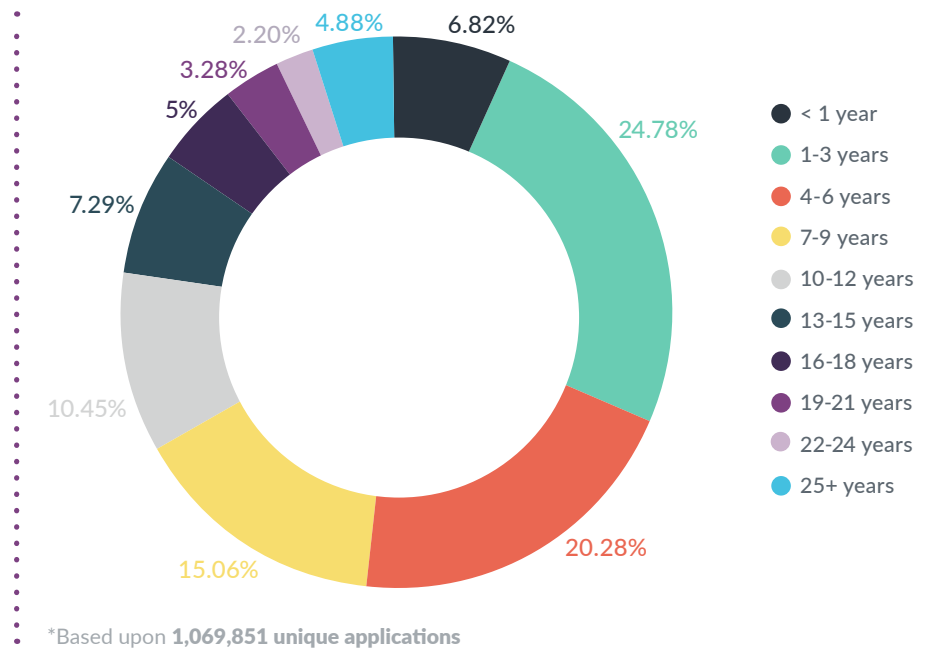In short: in school district hiring, it's (almost) all about who you know.

In school district hiring, *it's (almost) all about who you know.*

At first glance, hiring known quantities seems like it could be a smart move; the more you know of candidates in advance, the better off you're likely to be down the road. You can seemingly maximize the onboarding process with people who already know your school's environment and what the job might truly entail.

But if hiring who you know is a best practice, data should reveal that those teachers are likely to stick around in their roles longer and are likely to grow and quickly maximize student outcomes. Our data, however, shows almost the exact opposite. In fact, nearly one-third of teachers leave within the first three years to go to another school. Another 20% leave within the three years after that.

Figure 3:

Percent of Applicants by Years of Experience
(applications received between 7/1/14 - 6/30/17)

*Based upon **1,069,851 unique applications**

Legend:
- < 1 year — 6.82%
- 1-3 years — 24.78%
- 4-6 years — 20.28%
- 7-9 years — 15.06%
- 10-12 years — 10.45%
- 13-15 years — 7.29%
- 16-18 years — 5%
- 19-21 years — 3.28%
- 22-24 years — 2.20%
- 25+ years — 4.88%

A [2010 study from the National Bureau of Economic Research](#)[8] found that it is often less-effective teachers who leave a school, especially schools with high concentrations of low-achieving, minority students. This may be true of educators in our dataset, but further investigation of the demographic differences among those who stay and those who leave is required to know for sure.

Maybe word of mouth is not such a smart strategy after all. Perhaps a different approach could lead to a better fit, longer staying time, more stability and better outcomes for teachers and kids.

Nearly one-third of teachers leave within the first three years of school.

1-3 years
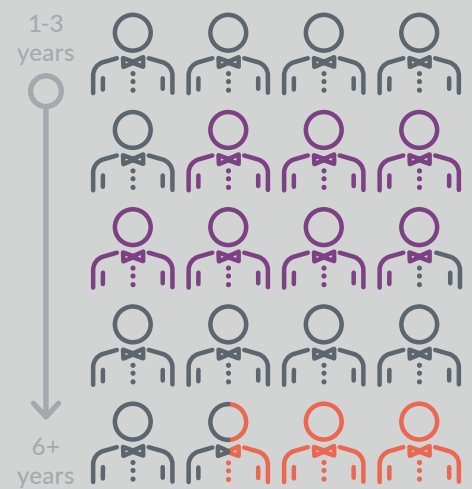
6+ years

Another 20% leave within three years after that.

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[8] Hanushek and Rivkin, "Constrained Job Matching: Does Teacher Job Search Harm Disadvantaged Urban Schools?," https://www.nctq.org/docs/Hanushek_and_Rivkin_Paper(3).pdf, (March, 2010).

The Cost of Likeability Bias

"Likeability and commonality can both be worthy of consideration during the hiring process, but relying too much on these factors over other attributes could result in some poor hiring decisions."

It is possible that "word of mouth" plays such a role in the hiring process not because it is thought to guarantee that a candidate is a good fit, but because it makes a candidate simply seem more likeable.

It is a well-known wrinkle of the hiring process that those who seem "likeable" are more likely to get a job than those who seem merely competent. Research shows that hiring managers have a bias toward hiring candidates they like, as well as those that seem like them. According to one study from researchers at Texas A&M University[9], an interviewer's initial perceptions of a candidate's similarity to the interviewer and his or her degree of likeability are both predictive of future employment.

Likeability and commonality can both be worthy of consideration during the hiring process, but relying too much on these factors over other attributes could result in some poor hiring decisions, and that can have consequences. In the case of school districts, that means high teacher turnover. It means that school districts are shouldering the burden of replacing more than half of all educators at least once in the first six years of teaching.

[9] Barrick, Murray and Swider, Brian W. and Stewart, Greg L., Initial Evaluations in the Interview: Relationships with Subsequent Interviewer Evaluations and Employment Offers (August 16, 2010). Journal of Applied Psychology, Vol. 95, No. 6, pp. 1163-1172, 2010; Mays Business School Research Paper No. 2012-10. Available at SSRN: https://ssrn.com/abstract=1991946

With 3.1 million active teachers in the public-school workforce today, about 1.55 million are turning over at least once every six years. Researcher Richard Ingersoll estimates that this costs[10] school districts $2.2 billion each year. Low staff stability and high rates of less experienced teachers can have even greater costs for students.

It's not difficult to draw a connection from likeability bias and how often school districts hire candidates through known sources, and how infrequently they hire those who are less-known. Those who come to the attention of hiring managers through referrals or have a local connection may seem more likable than those who do not. It does not necessarily mean they are a good fit for the school.

Could a more rigorous candidate hiring process help mitigate the likeability bias and improve educator-school fit?

Of 3.1 million active teachers in the public-school workforce today, about **1.55 million are turning over** at least once every six years.

= 100,000 teachers

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[10] Alliance for Excellent Education, "Teacher Attrition Costs United States Up to $2.2 Billion Annually, Says New Alliance Report," https://all4ed.org/press/teacher-attrition-costs-united-states-up-to-2-2-billion-annually-says-new-alliance-report/, (July 17, 2014).

13%

SCREEN FOR SKILL

vs.

87%

DO NOT SCREEN FOR SKILL

Hiring Based on Fit, Not Word of Mouth

Districts across the country rarely hire based on standardized review systems and instead rely on word of mouth or a local connection between the candidate and the district. A study of 200 school districts released last year[11] by the Center for American Progress found that districts' recruitment strategies "are hyperlocal, untargeted, or nonexistent." Fewer than half of districts included in the study recruit teachers at college or university job fairs. Just 30% of districts post job openings on social media networks. And while 67% of districts post job openings on education school websites, only 29% of those districts post openings outside of their state.

With such a limited approach, districts may be consistently hiring teachers who are a bad fit for their schools' cultures and needs and, unsurprisingly, see those teachers leave. Meanwhile, large numbers of high-quality teachers are not hired, even when they may be an excellent fit for a district. More than 88% of the applicants analyzed in this study had at least one year of experience, and 62% had at least four. Nearly 30% of the applicants had a decade or more of teaching experience. Even if school districts were screening for experience, however, they were unlikely to be screening based upon skill. According to the same Center for American Progress report, only 13% of the 200 school districts studied employed performance-based screening processes for applicants.

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[11] Konoske-Graf, Partelow, and Benner, "To Attract Great Teachers, School Districts Must Improve Their Human Capital Systems," https://www.americanprogress.org/issues/education-k-12/reports/2016/12/22/295574/to-attract-great-teachers-school-districts-must-improve-their-human-capital-systems/, (December 22, 2016).

While many districts might be facing teacher shortages in their specific geographic areas, it is also true that a large and experienced pool of teachers is looking for work — with many teachers not finding it if they apply through public sources.

We can reduce turnover by maximizing fit. Fit should incorporate attention to best practices in hiring, which require applicants to demonstrate competency in content knowledge and pedagogy, while also considering the school demographics and specific needs. By clarifying the specific qualities[12] on which to screen candidates for both human resources professionals and interviewing principals, school districts can keep their qualified applicant recruitment pipelines wide.

According to a report released last year by the Brookings Institution[13], rigorous teacher hiring processes can dramatically improve teacher quality. In the report, researchers examined the hiring processes at schools in Washington, DC. After collecting standard information about a candidate, the schools ask applicants to complete three additional assessments: a subject-specific written assessment to assess their understanding of content and instructional practices; a 30-minute structured interview with district personnel; and a teaching "audition" that district personnel observed and evaluated.

"We can reduce turnover by maximizing fit."

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[12] Stronge and Hindman, "Hiring the Best Teachers," http://www. educationalleader.com/subtopicintro/read/ASCD/ASCD_230_1.pdf, (May, 2003).

[13] Brian Jacob, "The power of teacher selection to improve education," https:// www.brookings.edu/wp-content/uploads/2016/07/teacher-selection.pdf, (March 11, 2016).

The study found that how a candidate performs on these assessments strongly predicts "an individual's performance on the district's teacher evaluation system" and that "candidates in the top quartile of applicant quality score 0.6 standard deviations above applicants in the bottom quartile, a difference that is equivalent to the improvement that an average teacher makes between her first and third year on the job."

Hiring should be focused more on credentials and experience, and less on word of mouth.

Districts should not deviate from gathering this data in the same way each time, ensuring that referrals and likeability biases do not crowd out more accurate assessments of whether a teacher is the right fit for the position. Districts should not completely eliminate the human element of the hiring process, but they should aim to reduce subjectivity at every stage of it.

"Hiring should be focused more on credentials and experience, and less on word of mouth."

Proposed Tool:
How to Evaluate Your District's Hiring

Many districts' hiring processes may be unwittingly operating with bias that can be eliminated by systematically reviewing and improving hiring practices and protocols. The effort required to diagnose bias and make changes may save thousands of dollars per year in personnel costs that could be redistributed to improve salaries or make other helpful instructional support improvements districtwide.

To begin the process of diagnosing potential bias, consider the following steps.

3 Steps to Evaluate Your District's Hiring

1 UNDERSTAND THE CURRENT SOURCES OF CANDIDATES IN YOUR DISTRICT.

a.) Where are jobs being posted and when?

b.) How many applicants are coming from each posting type (e.g. job board, social media, website, etc.)?

c.) What are the demographics of candidates from each posting type?

d.) Are any posting types more or less likely to result in appropriately credentialed and qualified candidates?

2 UNDERSTAND HOW MUCH OF THE AVAILABLE POOL IS TRULY BEING CONSIDERED.

a.) What percentage of applicants from each posting type are advancing to the next step in the interview process?

b.) What are the demographics (field, race, race, gender, home location, etc.) of those who are advancing to the next step, and how do they differ from that of the overall candidate pool?

c.) How many of those who are initially screened (percentage) are receiving phone or in-person interview opportunities?

(3) UNDERSTAND WHERE IN THE HIRING PROCESS THE CANDIDATE POOL MAY BE SKEWING TOWARD A PARTICULAR BIAS.

a.) Is it between application and initial screening?

b.) Is it between screening and first interview?

c.) What are the demographics of candidates from each posting type?

d.) Is it between interviewing and background check?

To evaluate the final question, it may be necessary to repeat the analyses in steps one and two above for the candidate pools at each stage in the process.

Once you have clarity about whether there is apparent bias in the hiring system and when it might be occurring, consider taking action to correct the problem by further investigating whether the issue is protocol, practice, or perhaps hiring manager personality. Finally, hiring criteria used by the district staff should be examined relative to the performance of the educators selected. Each of these factors may play a role in inadvertent bias with a high cost for teachers, students, and the bottom line.

About the Authors

Elizabeth Combs

is Managing Director of the Frontline Research & Learning Institute. She began her career as an elementary school teacher and Director of Administrative and Instructional Technology at Patchogue-Medford School District before moving to Imperial Software Systems, a professional learning services company, where she eventually served as President. She then held positions at My Learning Plan, Inc. as President and Chief Strategy Officer. Her professional affiliations include memberships with Learning Forward and the Association for Supervision and Curriculum Development. Ms. Combs holds a Bachelor of Arts in Elementary Education as well as a Bachelor of Arts in Psychology from State University of New York at Geneseo, a Master of Arts in Technology in Education from Teachers College, Columbia University and a professional diploma in Education Administration from Hofstra University. She also holds certifications and licenses to serve as a teacher, school administrator and supervisor.

Sarah Silverman

is Vice President at Whiteboard Advisors where she advises on education, workforce and wellness policy. She has assisted with development of state policies that transform teacher and leader preparation, evaluation and training; led development of a national birth-through-workforce data dashboard; and facilitated coalitions to advance bipartisan policy solutions. Her prior work includes managing the Pre-K-12 education portfolio at National Governors Association Education and consulting with states and districts on performance management and teacher evaluation policy reform at TNTP as well as serving as the Director of Evaluation & Assessment and Chief Information Officer for See Forever Foundation. Dr. Silverman holds a master's degree in educational psychology and a doctorate in educational policy and leadership from The Ohio State University. Her research and writing have focused on the impact of state and national policy on social justice activism, teacher beliefs and ethics of education.

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