Growing Great Teachers

How school system leaders can use existing resources to better develop, support, and retain new teachers—and improve student outcomes

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Explore the Toolkit to Grow Great Teachers

This report is part of a larger toolkit designed to guide your district or school through the process of meaningfully supporting, growing, and retaining new teachers—in ways that increase your return on investment and drive student learning. The toolkit includes:

- **An Overview and Self-Assessment:** We designed this tool to help district central offices navigate the underlying enabling conditions necessary for schools to experience success by strategically using people, time, and money to support rookie teachers.

- **A Playbook:** Our in-depth illustration of five models for giving your rookie teachers more shelter and development opportunities includes examples of schedules, trade-off considerations, and suggestions on how to adapt each model to work best within your unique context.

- **The Make-it-Work Planning Tool and Manual:** Although you will need to use your judgement about which trade-off levers are advisable in your district or school, our Excel tool does all the math for you by balancing costs, schedules, class sizes, teacher assignments, and other variables.

- **A Workbook:** Our planning document walks your team through delegating roles, defining success metrics, and determining action steps for the key elements of a successful rookie teacher support program.

www.erstrategies.org/tap/new_teacher_support_toolkit

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Executive Summary

Every year, thousands of promising and talented people take on a uniquely special role in our society: they become teachers. They bring fresh energy and enthusiasm to the challenge of making a positive impact in children's lives; but unfortunately, many quickly find the job overwhelming and leave the profession. This turnover disproportionately affects students of color in low-income communities, where the need for highly-effective teachers is most acute.

To improve the effectiveness and retention of new teachers, many K-12 leaders are investing in models that emphasize well-supported, pre-service clinical practice for rookie teachers. These models ideally provide both **shelter** (i.e. reduced workload) and **development** (i.e. opportunities to learn and practice), gradually ramping up teaching responsibilities while providing expert-led, curriculum-connected professional learning support for rookies. While these are often called "residency" models, the concepts apply even to full-time rookie teachers-of-record.

ERS studied pathways into teaching in three large urban systems that hire more than 1,100 new teachers each year. Based on impact modeling, we found that with a strategic approach to rookie teacher recruitment, placement and development, **students taught by rookie teachers could gain an average of 3.5 to 4.2 additional months of learning each school year**. Furthermore, a strategic "shelter-and-develop" model could have a greater return on investment for teaching and learning than other strategies, such as radical class size reductions or 1:1 tutoring.

A district's total investment in a robust, system-wide rookie teacher recruitment and support strategy can be significant—as much as $25,000 per candidate, plus investments in new teacher induction, teacher leaders to support rookie teachers and district program administration. But system leaders can offset these costs by rethinking current system- and school-level investments, including "legacy" policies and practices that hinder effective shelter and development for rookies. We offer five recommendations for districts to best leverage their investment in new teachers:

1. **Work with a portfolio of high-quality teacher preparation partners** including those that emphasize pre-service clinical practice.

2. **Place well-supported rookies in otherwise hard-to-staff positions** where the next best alternatives are often long-term substitutes or less effective teachers.

3. **Create multi-year retention incentives**, including incentives that make teaching economically feasible for candidates from historically under-represented communities.

4. **Reallocate and target existing school and system-level investments** including Title I and II dollars and other professional development investments, in favor of targeted supports for rookie teachers.

5. **Design schools to support rookie teachers** through Strategic School Designs—i.e. deliberate use of people, time, and money—that enable targeted instruction for students, leadership opportunities for effective teachers, and a powerful culture of professional learning that rapidly raises the instructional bar for all teachers. (In the rest of the paper, we offer several examples of these designs.)

Armed with models for supporting rookie teachers *and* strategies for sustainably funding these models, school and system leaders can radically increase both teacher effectiveness and student performance in their most challenged schools—schools whose turnaround is critical to the long-term success of the system and all its students.

Introduction

If there is one thing that education practitioners and policymakers can agree on, it's this—transforming educational outcomes for students, especially students growing up in low-income communities, requires high-quality, engaging instruction provided by teams of skilled educators.

Developing and sustaining that teacher force is more difficult than ever before. Teacher turnover in our highest-need schools remains unacceptably high, creating instability in the places that need high-impact teaching the most. This "churn challenge" is exacerbated by record drops in enrollment to traditional teacher education programs, which were already facing demands to better prepare new teachers for the classroom.[1] After many years of growth, applications to Teach for America—a popular barometer for interest in teaching—have declined and remain 15 percent lower than peak levels.[2] At the same time as students are arriving with deeper and more varied needs, we have raised the bar for excellence for both student learning and teacher performance. All of this has led system leaders, principals, higher education leaders and others in the teacher preparation field to fundamentally re-think how we ensure that incoming teachers are equipped to lead their students to success from the first day they take over a classroom.

Fortunately, in-depth analysis of new teacher support in three large, urban districts demonstrates that investing in more strategic preparation and support is not just a way to triage the current talent shortage—it's a smart long-term move with the potential to drive significant increases in student achievement at relatively low cost. Better preparing and improving teachers has the potential to reduce churn, thereby keeping a stable workforce longer and improving student performance where we need it most. The key, especially in communities with the greatest need, is to apply high-impact approaches that are practical and fiscally sustainable.

Who is a "new" teacher?

In the education sector, we have many names for teachers who are starting out in the profession and the pathways they take to the classroom. We call incoming educators "new," "novice" or "early-career"; we differentiate between "pre-service" experiences and being a "teacher-of-record"; we consider some pathways "traditional" and others "alternative." And as we continue to develop new and more innovative models, some of which blend elements of existing approaches, many of these labels can become more confusing than clarifying.

In this paper, we generally use the term **"rookie teachers"** to refer to any teacher who is new to teaching. We also refer to any teacher who coaches a rookie—whether the role is formally called "mentor," "teacher-leader," "coach" or something else—as a **"guiding teacher."**

Most of our analysis and recommendations focus on strategies where rookie teachers have a long on-ramp to full responsibilities, including significant, dedicated support for their early-career development. In the next few pages, we will distinguish these strategies with the terms **"shelter-and-development"** and **"residency model,"** and we will define both terms in contrast to other approaches to rookie teacher development. Importantly, our definitions will *not* limit what type of organization is operating the "residency," leaving open the potential for high-impact models that operate within district structures and/or in partnership with institutions of higher education, summer induction pathways such as Teach for America, or other support organizations.

From "vicious" to "virtuous" talent cycles

Consider the typical conditions in a struggling big-city school that qualifies for district or state "turnaround" status. This school's students are bright, creative, and resourceful—they are brimming with potential. Many of them are also likely facing big challenges: growing up in low-income, potentially high-crime neighborhoods; many with special needs and/or who do not speak English at home. Some may cycle in and out of the school as they are shuttled between homes and shelters. It's likely that the majority enter school years below grade level and have not yet made the significant progress needed to reach rigorous college- and career-ready standards.

The school is also plagued by a "vicious talent cycle" that hamstrings change efforts. The faculty are likely a mix of experienced and novice teachers, as well as several long-term substitutes. At least some of the staff, who were unable to secure another job in the district, have been force-placed into positions for which they are poorly prepared. Instructional support for teachers is limited, and development opportunities are undifferentiated and often crowded out by basic classroom and building management challenges. As a result, as many as three out of ten of the school's teachers leave the school each year. Some move quickly into schools or districts with fewer challenges; others leave education altogether. Some depart mid-year, leaving the school with open positions at a time when qualified candidates are in especially short supply. Each year, as the district struggles to fill vacancies, several classrooms are again staffed with teachers who lack experience in the subject matter, let alone with the district's new, more rigorous curriculum.

FIGURE 1

A vicious talent cycle creates instability; a virtuous talent cycle creates stability and growth.
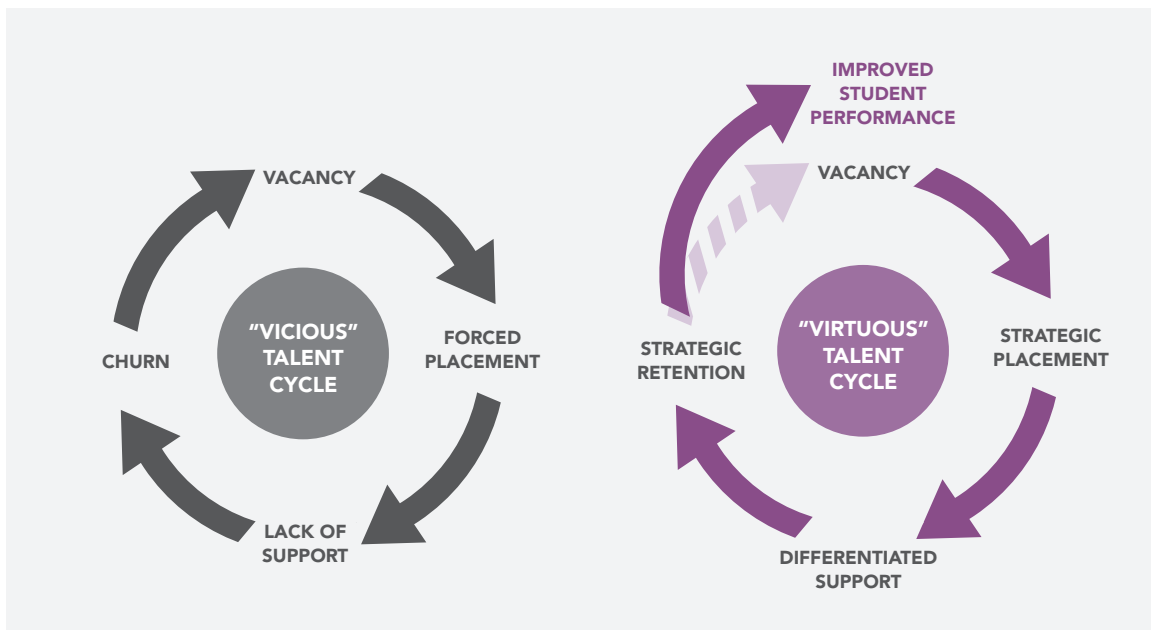
Improving student performance in this extreme, but all too common, context is a challenge that even the most effective principals struggle to address. Our ability to foster a new "virtuous talent cycle" may hold the key to ultimately changing the narrative in the school. The virtuous cycle might look like this: with support from system leaders, principals place rookie teachers—potentially including pre-service teaching residents—in roles with structured mentorship and differentiated support to help them rapidly improve their practice. This model offers highly-effective, experienced teachers new opportunities to lead and extend their impact in the school. The combination of new career pathways for experienced teachers and deeper support for incoming teachers helps reduce attrition, leaving the school with fewer vacancies and less need for long-term substitutes. Under these improving conditions, principals have an easier time recruiting additional skilled, qualified teachers who are strategically placed in open positions, with differentiated in-school support structures. The effect on students could be significant; the former "turnaround school" would finally turn around.

How do districts invest to create virtuous talent cycles today?

Current pathways into teaching

Today, the vast majority of teachers are asked to independently lead classrooms after completing traditional programs that offer limited opportunities for supported pre-service teaching experiences (see Figure 4). In this context, and in their efforts to rapidly improve outcomes in the lowest-performing schools, system

leaders invest in a wide variety of teacher preparation and support models. These investments are designed to increase the number of talented educators coming into the system, especially where there is a talent shortage or where there are not enough graduates of traditional schools of education.

Some of these models focus on reducing barriers for high-potential teachers and future leaders. Typically, they provide training and support either in the summer or throughout the school year—Teach For America is the best-known example of this **summer induction** model. Others are designed to accelerate teachers' path to certification (such as typical **alt-cert** models), with or without significant additional support, or to help skilled paraprofessionals transition into full teaching roles (such as **para-to-teacher** programs).

Some of the most promising models, such as **teaching residencies**, prioritize intensive, well-supported clinical practice before the candidate becomes the full-time "teacher of record." These models are guided by the belief that teachers get better by observing excellent real-world teaching, applying their learning in real classrooms, and receiving feedback from expert mentors. Strategically designed programs help teachers improve their practice and stay in the classroom longer, amplifying impact on student achievement.

Pre-service clinical practice also gives system and school leaders a chance to assess a candidate's skill and fit before making a full-time hire. For example, at the high-performing Edward Brooke Charter School in Boston, about 60 percent of teachers who complete a highly-structured, year-long, pre-service residency ultimately return as full-time teachers the following year; most of the remaining candidates are rated less effective and not offered teaching positions.[3]

Today, most teacher residencies are designed to address human capital needs that traditional schools of education have historically struggled to meet. However, in partnership with districts and other programs, an increasing number of traditional education schools are adjusting their training models to incorporate much longer periods for pre-service clinical practice, in the form of a well-supported teacher residency for undergraduates and/or graduate students. Some states and districts have also created their own in-house residency programs.

When done well, these models offer opportunities for both "shelter" and "development." **Shelter** refers to strategies that simplify the regular teaching job—fewer preps, students, hours teaching, or outside-the-classroom responsibilities. **Development** refers to strategies that create more space for rookie teachers to learn their craft—observing master teachers, participating in collaborative planning, practicing skills, being observed and receiving feedback. Teacher residencies offer the most significant opportunities for shelter and development, but such strategies could be applied to support all rookie teachers. (Our Growing Great Teachers Toolkit outlines how school systems can create sustainable "shelter-and-develop" models for teachers, regardless of their recruitment and training pathway.)

	🌂 Shelter	🏋 Development
Definition:	Simplifying the job	Training and learning
Improves:	Retention	Effectiveness
Why:	Teachers will stay if their workload is manageable while they improve their craft.	Teachers will become more effective with increased coaching and professional learning opportunities.
Example approaches:	• Rookies teach a reduced load, giving them fewer students and more free periods • Rookies have reduced lesson planning responsibilities	• Rookies receive weekly cycles of observation, feedback, and coaching from instructional experts • Rookies have protected time weekly to observe a mentor teacher model excellent teaching

Over the past year, our team at Education Resource Strategies (ERS) has studied the structure, costs and impacts associated with recruiting and supporting rookie teachers across three large, urban school districts. Together, these districts partner with more than ten distinct local and national organizations to recruit, prepare and support more than 1,000 incoming teachers annually (see Appendix A for data on the districts and programs studied).

Our goal was to assess the **return on investment** (ROI) of different models and identify strategies for maximizing that ROI. While we considered multiple types of pathways into teaching, we particularly focused on residency models that include significant pre-service clinical practice. In assessing ROI, we examined impact on student learning and the scale and types of investments associated with each pathway. Although a single, reliable ROI metric remains elusive with available data, we assessed a range of benefits and costs in order to describe how school and system leaders can create and sustainably support high-impact pathways for rookie teachers.

The impact of strategic teacher development on student learning

To understand the potential impact of a strategic approach to supporting and retaining high-quality rookie teachers, we created a unique projection of impact on student learning by drawing on current academic research and our own analysis and experience working in large urban districts across the country.* (See Appendix B for our methodology.) This impact model seeks to assess the impact on "typical" students in a high-needs school, when they are taught by teachers trained in a program with a higher-than-average track record of turning out effective rookie teachers, versus the teachers who might otherwise serve them—i.e. long-term qualified substitutes.

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* These estimates are the result of detailed modeling of the *potential* impact from implementing a strategic approach to rookie teacher support that successfully increases effectiveness, strategic placement, and retention of new teachers. To derive these values, we made reasonable assumptions based on academic research from the field and analysis from our case study districts. Please see Appendix B for a detailed description of our assumptions and methodology.

Our impact model indicates that **a strategic approach to recruiting and supporting rookie teachers could generate as much as four incremental months of learning in one year for students taught by those rookie teachers.** Specifically, we determined that:

- If leaders in a high-need school place rookie teachers...

  o ...who complete a **high-quality training program**, such as a rigorous teacher residency…

  o ...in **hard-to-staff roles** that would otherwise be covered by qualified long-term substitutes…

  o ...along with **explicit retention commitments and incentives** that encourage rookie teachers to stay at least four years …

- Then students taught by that cohort of rookie teachers could gain an **average of 3.5 to 4.2 months of learning in one year** (which amounts to more than one-third of a school year) versus what research indicates they would otherwise learn.

Notably, the lower end of this projection (i.e. 3.5 months) assumes that the teacher being replaced is a *qualified* long-term substitute. For vacancies that are filled by less effective substitutes, the "baseline" effectiveness from which we measure incremental learning would be lower, increasing the projected average impact on student learning. In our model, this raises the projected impact of a strong new teacher placement-and-support strategy to a total of 4.2 months, or nearly half a year of learning.

FIGURE 2

A strategic approach to placing and supporting rookie teachers could yield more than four months of additional student learning.

AVERAGE ADDITIONAL STUDENT LEARNING (IN MONTHS)

Effectiveness	Placement	Retention	Total
			3.5–4.2*
		1.6	1.6
	1.1–1.8*		1.1–1.8*
0.8			0.8
Place teachers from high-quality clinical practice programs...	…in hard-to-staff roles that would otherwise go to long-term substitutes or unqualified teachers…	…with incentives designed to retain those teachers for at least four years…	Total potential impact on student learning for the average teacher in these conditions

* Range refers to whether the new teacher replaces a substitute at the 15th or 20th percentile of effectiveness.

Source: District HR data, ERS analysis

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How does strategic support for rookie teachers compare to other instructional investments?

An average of four months of additional learning in one year across whole classrooms of students sounds like a great return—but how does it stack up against other potential investments school and district leaders can make—including both t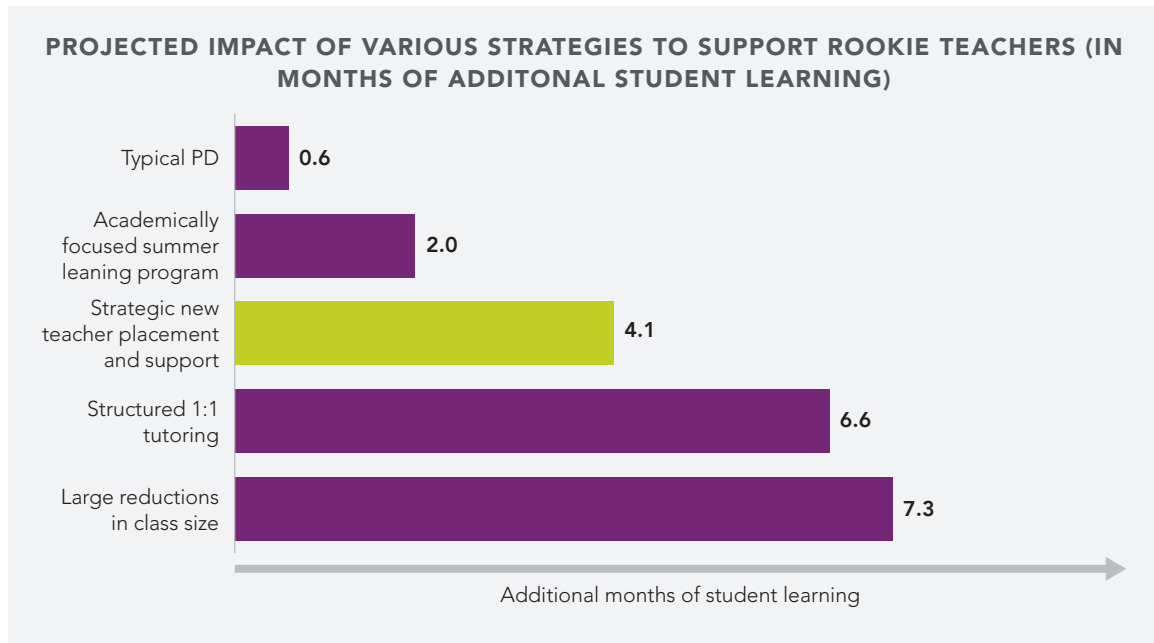raditional professional development and more innovative strategies for advancing student learning? Leveraging academic research and our own analysis of effectiveness data, we determined that a strategic approach to new teacher recruitment and support may offer significantly higher potential impact than traditional teacher PD or academically-focused summer programs. Other strategies, such as sustained 1:1 tutoring or radical reductions in class size, offer greater potential impact—but at a much higher cost and, in some cases, with limited practicality.[4]

FIGURE 3
1:1 tutoring and large reductions in class size may offer greater student impact, but at a higher cost.

PROJECTED IMPACT OF VARIOUS STRATEGIES TO SUPPORT ROOKIE TEACHERS (IN MONTHS OF ADDITONAL STUDENT LEARNING)

Strategy	Additional months of student learning
Typical PD	0.6
Academically focused summer leaning program	2.0
Strategic new teacher placement and support	4.1
Structured 1:1 tutoring	6.6
Large reductions in class size	7.3

Additional months of student learning

For example, consider an elementary school serving 500 students whose leaders want to reduce average class size to 15 or less. This strategy would require a 30 percent increase in teacher positions, at about twice the cost of supporting six teaching residents each year.[5] But because our highest-need schools already struggle to attract enough teachers to fill open positions, implementing such a strategy would still require a fundamentally different approach to recruiting, cultivating and developing rookie teachers.

What does it cost to recruit, train and support rookie teachers?

Programs that create non-traditional pathways for new teachers vary widely in structure and scope; therefore, cost-per-participant also varies widely. In general, the more clinical practice and support provided, the higher the program's cost. For graduate resident programs, a main cost driver is

candidate stipends, which are designed to compensate participants who are unable to seek out other part-time work due to their pre-service teaching responsibilities. Undergraduate resident programs typically don't involve a stipend, which can radically lower cost to the district compared to graduate resident programs that do provide a stipend. These variations have major implications for system leaders who are considering implementing such programs at scale.

In comparison to traditional preparation or alternative certification models, teaching residencies typically deepen the pre-service teaching experience with a full year of supported, full-time co-teaching prior to the candidate becoming "teacher-of-record." Candidates may receive a stipend of up to $30,000 for their co-teaching time and complete required coursework during the pre-service year. In addition, school teams get the benefit of working extensively with the candidate during the pre-service year to determine if he or she would be a strong full-time hire. Where residency models are managed by external partners, former residents hired as teachers-of-record typically receive one or more years of continued coaching to supplement district-provided supports.

FIGURE 4
Teaching residencies deepen the pre-service teaching experience.

COMPARATIVE OVERVIEW OF PRE-SERVICE TEACHING EXPERIENCES

	Examples	Pre-Service Teaching*	Coaching and Support	Coursework	Compensation
Traditional	Undergraduate or graduate programs in education	~10 weeks of student teaching, but varies across states	Provided by college or university, ends after graduation	While enrolled as a student	None through the program; full-time salary upon hire
Alternative Certification Program	• Teach for America (TFA) • The New Teacher Project (TNTP) • Arkansas Teacher Corps (ATC) • Tulsa Teacher Corps (TTC) • Para-to-teacher programs	Many hold a summer induction consisting of PD sessions and part-time teaching	Varies — many provide their own coaching and PD sessions, and/or offer district- and school-level coaches	Often requires graduate-level courses to get certification	Earn salary as a teacher-of-record. Some additional stipends, for example: • TFA: $5-6K AmeriCorps reward • ATC: $15K across 3 years
Residency Model**	• Boston Teacher Residency • Urban Teachers • Nashville Teacher Residency	Most **are pre-service** models, with co-teaching during year 1 followed by promotion to teacher-of-record; some models go right to TOR	Most support provided during year 1	From summer induction throughout the program	• $10-30K stipend during year 1 • District salary once becoming TOR

* *Pre-Service Teaching* refers to the time period when a rookie teacher is working in a classroom in some capacity, but is not yet a teacher-of-record.
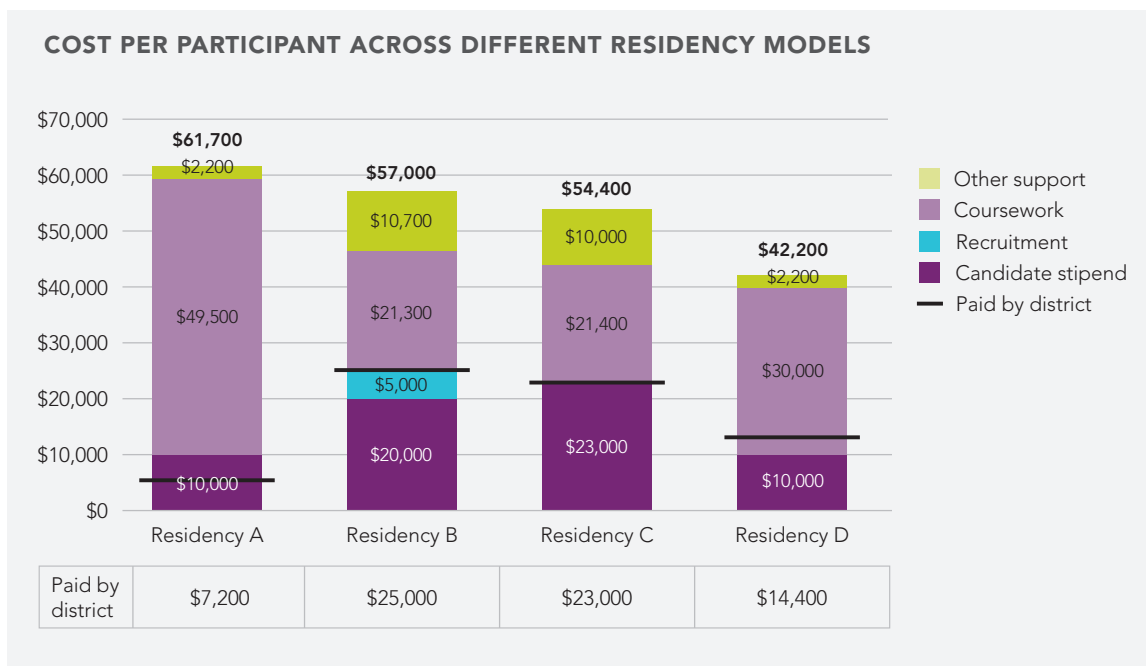
**Residency Models are a type of alternative certification program.

With their emphasis on pre-service clinical practice, teacher residencies typically carry several categories of cost, a portion of which is paid by the district to the residency program partner:

- Residents are paid a **stipend** of $10,000 to $30,000 per resident to compensate them for co-teaching time. Third-party residency partners typically pass some or all of this cost along to the district; therefore, the stipend cost represents the district's most significant investment in residents. Notably, undergraduate residency programs typically don't include a stipend, which can radically reduce program cost for partnering districts.

- Third-party residency programs sometimes assume responsibility for **recruiting** candidates, the cost for which may be passed along to the district.

- **Coursework** requirements during the pre-service residency year are intensive, incurring a per-resident cost between $21,500 and $49,500. Residency programs typically share this cost with the resident, offset by financial aid where available. Notably, because many residency models are not yet operating at scale, there is potential to reduce the per-participant costs for coursework over time.

- **Other supports** during the pre-service and in-service years, such as coaching and mentorship through a third-party residency partner, are crucial to supporting the resident's development. These costs can vary depending on the length and intensity of the support model, from $2,200 to more than $10,000 per resident in the models we studied.

FIGURE 5

Across the three districts we studied, the out-of-pocket costs for districts typically account for roughly 10 to 40 percent of total cost per participant.

COST PER PARTICIPANT ACROSS DIFFERENT RESIDENCY MODELS

	Residency A	Residency B	Residency C	Residency D
Total	$61,700	$57,000	$54,400	$42,200
Other support	$2,200	$10,700	$10,000	$2,200
Coursework	$49,500	$21,300	$21,400	$30,000
Recruitment		$5,000		
Candidate stipend	$10,000	$20,000	$23,000	$10,000
Paid by district	**$7,200**	**$25,000**	**$23,000**	**$14,400**

Note: All data represent variable costs and exclude national administrative/overhead program costs.

Source: District and program financial and HR files, ERS analysis

In addition, **administrative costs** can be significant for any teacher development model, especially where leaders are working to scale up a relatively young program. Third-party residency partners typically rely on philanthropic support to cover these costs, although many supporters provide grants with the expectation of decreasing need for their contributions over time.

District leaders must also plan for additional system- and school-level supports for rookie teachers, including investments in teacher leadership and intensive onboarding, optimally provided before the first day of school.

Investments in teacher leadership. Having a strong cadre of experienced, highly effective teacher leaders is important to support any group of rookie teachers. Teacher residency programs often provide the catalyst for districts to create and invest more significantly in guiding teachers. These teacher-leaders can also guide teacher-led teams and help to significantly increase the effectiveness of individual members, such as the teaming structures incorporated into models like Public Impact's Opportunity Culture.[6] Creating and strategically staffing teacher leadership roles can also open up new career paths for high-performing teachers, who will have the opportunity to extend their impact on students and contribute to the long-term health of their school community. System and school leaders can compensate guiding teachers by increasing pay, usually with a stipend, and/or by increasing their release time, with the goal of facilitating more cycles of observation and feedback for rookie teachers.

The size of this investment will vary based on the size of the stipend offered to guiding teachers, the value of release time, and the number of rookie teachers (or even other team members) supported by them. For example, a guiding teacher in a school where he or she has sufficient time within the existing schedule to support two rookie teachers may receive a stipend of $5,000, or $2,500 per teacher supported; a more personalized model where each guiding teacher supports one rookie teacher and receives an increase in daily release time, the cost could be as high as $11,000 per rookie.[7]

Investments in new teacher induction. Incoming teachers require intensive training prior to the start of the school year to help ground them in district- and school-level norms, culture and instructional expectations. This training should be coordinated with program and school partners to ensure that all rookie teachers and guiding teachers are available to attend. The district will likely need to compensate leaders for developing and implementing the onboarding curriculum and cover some out-of-pocket costs associated with the new teacher induction process.

Investments in district-level management. Partnerships with residency programs and other alternative pathway programs require system-level oversight, including coordinating teacher development and support efforts. The district may also invest in additional training, support and evaluation of guiding teachers, to ensure their impact over time.

Depending on how district leaders structure leadership roles, induction and system-level supports, the cost to support a high-quality residency model could increase by up to $5,000 per resident. As shown in Figure 5, the cost to the district for some residency models includes recruitment and hiring. Because a district's recruitment-related costs can add up to anywhere from $800 to $4,000 per new teacher, investing in a program partnership that includes recruitment can offset some of the district's total cost.[8]

How can a strategic residency model help increase return on investment in rookie teachers?

Our analysis of data from three large, urban systems demonstrates that district leaders can generate higher returns through a strategic approach to placement, support, and retention of rookie teachers—and that strategically designed residency models offer an especially promising opportunity to get the most out of this investment. Most districts do have opportunities to reallocate resources to fund investments in high-quality residency models. Bringing teaching residents into a school also creates an opening to reorganize school-level resources in ways that can catalyze school improvement. In addition, if district leaders invest in strategies that improve retention of rookie teachers, lower turnover can reduce the long-term cost for new teacher recruitment and support.

Data from the three districts we studied indicate that leaders have the potential to increase the impact of their rookie teacher support strategy if they:

1. **Work with a portfolio of high-quality teacher preparation providers**, with a focus on programs that build in extended pre-service clinical practice opportunities for candidates.

2. **Place well-supported rookies in otherwise hard-to-staff-positons**, where incoming teachers are most likely to replace long-term substitutes or less effective teachers, creating the greatest potential impact on student performance.

3. **Create multi-year retention incentives**, working with partners to minimize early career attrition through explicit retention commitments, incentives and financial supports for candidates coming from traditionally under-represented communities.

4. **Reallocate and target existing school- and system-level investments** to ensure high-quality support for pre-service and early career teachers, with strategic investments in stipends for teaching candidates, while also investing in new teacher leadership pathways.

5. **Design schools to support new teachers**, by using the injection of novice or pre-service teachers as a catalyst for implementing Strategic School Designs that enable targeted instruction for students, leadership opportunities for the most effective teachers and a powerful environment for rapidly developing pre-service teachers.
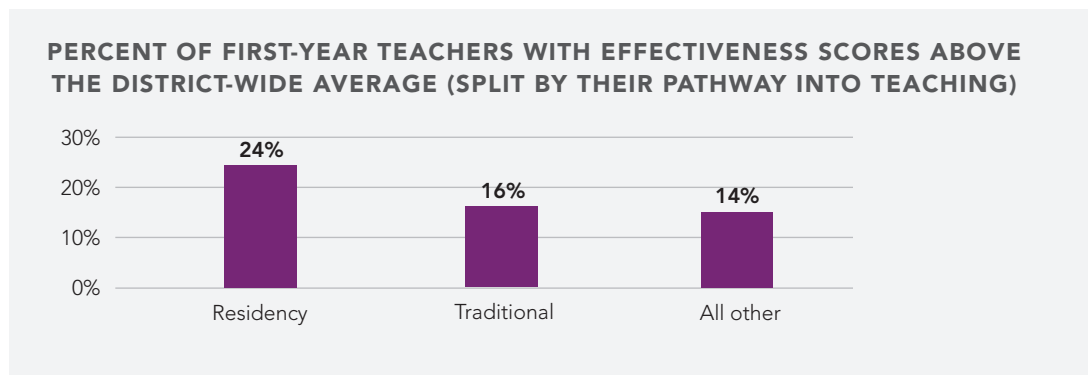
Recommendation 1: Work with a portfolio of high-quality teacher preparation providers

For many districts, the choice to expand recruitment beyond the traditional pathway is borne of a belief that other models, including residencies that include the opportunity for significant pre-service teaching, yield more effective teachers. Academic research and our analysis of teacher effectiveness ratings in one of our case study districts suggest that models which include more pre-service teaching opportunities increase the chances that rookie teachers will become effective teachers more quickly.[9]

For example, in District A, rookie teachers who entered the system through a residency program that includes opportunities for significant and supported pre-service teaching are 1.5 times more likely than their peers from traditional or other pathways to be rated higher than the district-average teacher.

FIGURE 6
In District A, most new teachers have below-average effectiveness. Teachers trained in residencies are slightly more likely to rank "above average" than other new teachers.

PERCENT OF FIRST-YEAR TEACHERS WITH EFFECTIVENESS SCORES ABOVE THE DISTRICT-WIDE AVERAGE (SPLIT BY THEIR PATHWAY INTO TEACHING)

Pathway	Percent
Residency	24%
Traditional	16%
All other	14%

It's important to note that variation in performance among teachers *within* any given pathway exceeds variation in performance *between* pathways. The average first-year teacher—no matter how she arrives in the district—is rarely as effective as the average fifth-year teacher; for example, in District A, 57 percent of teachers with more than one full year of experience were rated above the district average. Still, evaluation data and educator experiences support the idea that non-traditional models, especially those that include more pre-service clinical practice, can provide a springboard for near- and long-term teacher effectiveness.[10] Therefore, leaders of teacher training programs and their district partners should emulate and improve upon current best practice models, including with extended pre-service clinical practice.

Recommendation 2: Place well-supported rookies in otherwise hard-to-staff positions

Relying solely on increases in teacher effectiveness puts district leaders at risk of missing out on some of the most significant opportunities to generate direct, measurabl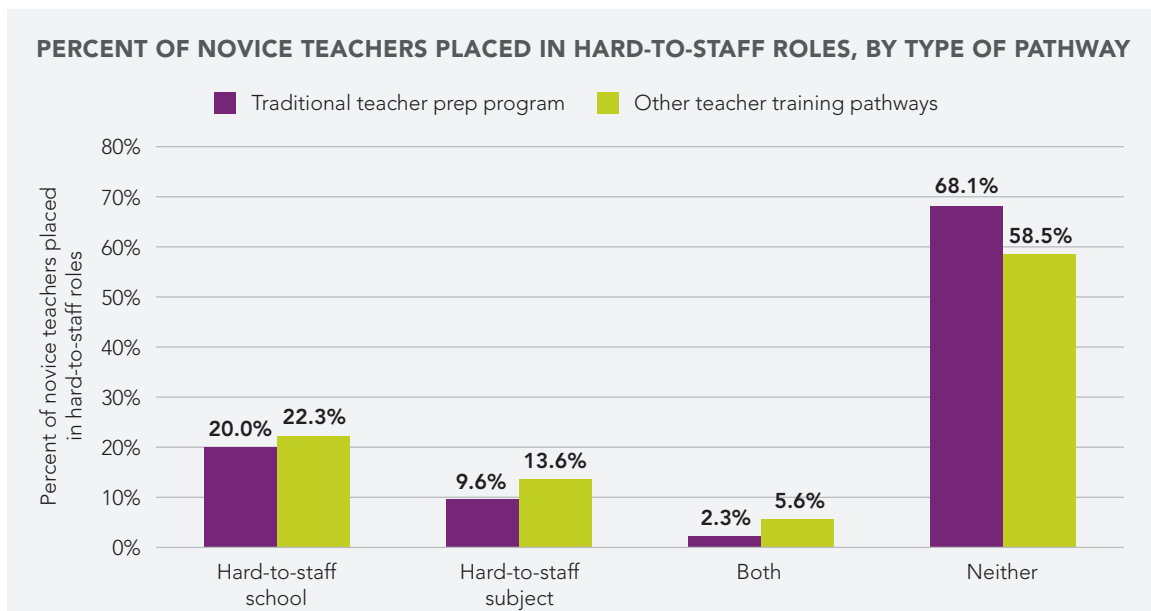e return on their investment in rookie teachers. **The largest potential increase in student outcomes happens when effective incoming teachers are placed in hard-to-staff roles that would otherwise be filled by long-term subs or unqualified teachers.**

In an ideal world, the most challenging roles and schools should be filled by the most experienced, effective teachers. Yet there are often more of these "hard-to-staff" positions than can be filled by experienced teachers alone, and these positions are typically concentrated in a subset of schools. Therefore, the most challenging roles are often assigned to long-term subs and unqualified teachers.

Placing comparatively well-trained new teachers from a high-quality residency program is likely a better option for students—and the best use of the district's deep investment. In the districts we studied, we found that this placement pattern was already happening—first-year teachers who entered through alternative means such as residencies were more likely to be placed in a hard-to-staff school, hard-to-staff subject, or both, as compared with first-year teachers who entered through a traditional pathway with limited pre-service clinical practice. However, more than half of first-year teachers from alternative pathways were not placed in hard-to-staff roles, indicating that there may be potential to extend a strategic placement strategy to more schools and positions.

FIGURE 7

In the three districts we studied, less than half of novice teachers from any pathway are placed in hard-to-staff roles.

PERCENT OF NOVICE TEACHERS PLACED IN HARD-TO-STAFF ROLES, BY TYPE OF PATHWAY

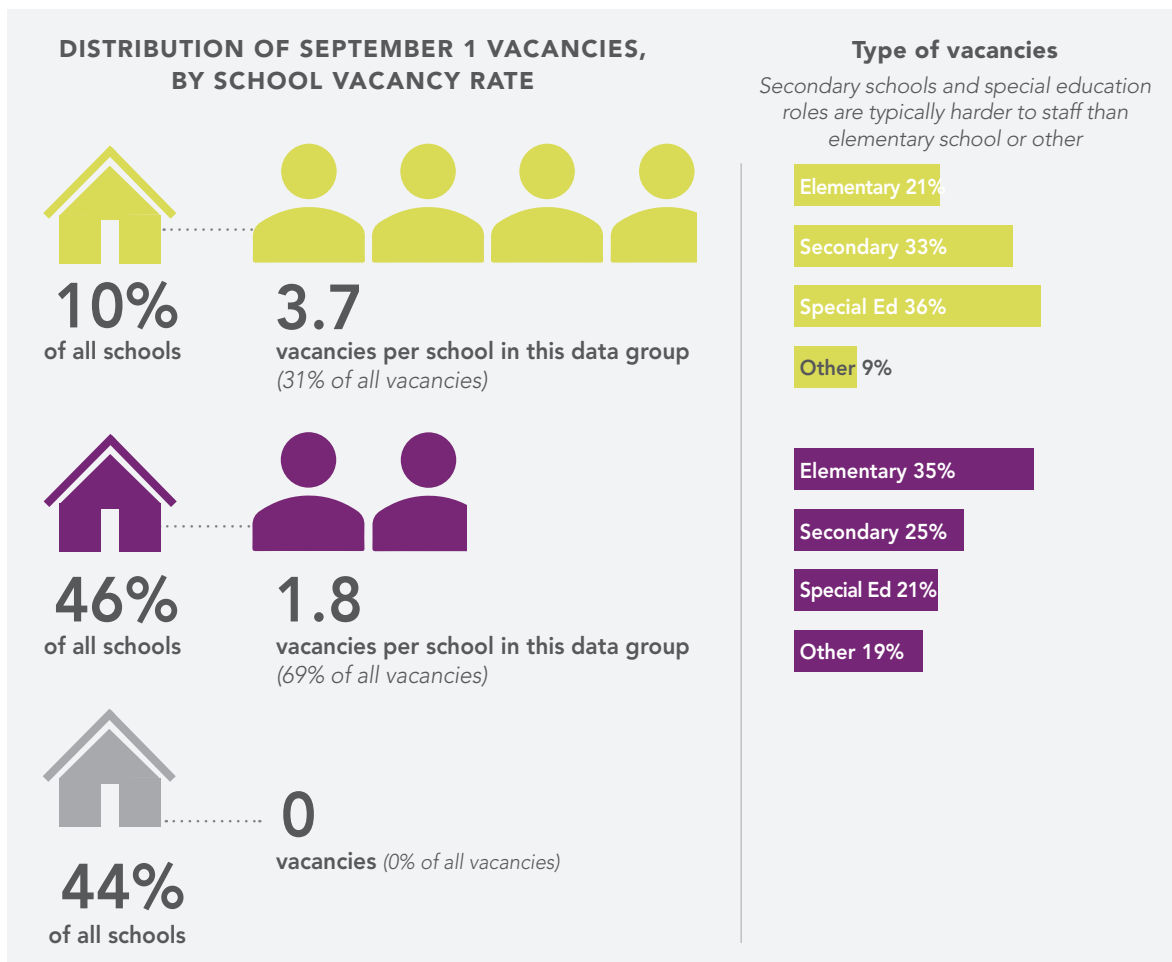■ Traditional teacher prep program   ■ Other teacher training pathways

Data represent straight, unweighted averages for all relevant pathways across three districts. "Other teacher training pathways" refers to residency models, alternative certification programs, and summer induction.

Source: District HR data, ERS analysis

15

This issue is usually concentrated in a subset of particularly hard-to-staff schools. In one district we studied, on September 1st—i.e. once the school year had already started—10 percent of schools had an average of 3.7 vacancies per school, or 31 percent of all vacant positions. 46 percent of all schools had 1.8 vacant positions on September 1st; the remaining 44 percent of schools were fully staffed by that date. Exacerbating the challenge, open positions in the 10 percent of schools with the most vacancies skewed toward harder-to-staff special education and secondary grades roles, in contrast to the schools with fewer vacancies. These are the schools where a cohort of teacher residents may be able to turn the vicious talent cycle into a virtuous one, when given intensive support from the school system. A "new teacher academy" (which we describe later in this paper) may be one such model.

FIGURE 8

Ten percent of schools have double the vacancy rate on September 1st compared to most other schools, and their open positions tend to be in hard-to-staff roles.

DISTRIBUTION OF SEPTEMBER 1 VACANCIES, BY SCHOOL VACANCY RATE

10% of all schools

3.7 vacancies per school in this data group *(31% of all vacancies)*

46% of all schools

1.8 vacancies per school in this data group *(69% of all vacancies)*

44% of all schools

0 vacancies *(0% of all vacancies)*

Type of vacancies

Secondary schools and special education roles are typically harder to staff than elementary school or other

Elementary 21%
Secondary 33%
Special Ed 36%
Other 9%

Elementary 35%
Secondary 25%
Special Ed 21%
Other 19%

Source: District HR data, ERS analysis.

Some partner programs are designed to address districts' most critical staffing needs. For example, Urban Teachers, which operates in Baltimore, Washington DC and Dallas, ensures that all its residents achieve dual general education and Special Education certification, enabling these teachers to work in hard-to-staff roles and increasing potential value to the district partner. Models like this increase the potential for district leaders to leverage new teacher development partnerships to address their most pressing staffing needs.

Recommendation 3: Create multi-year retention incentives

System leaders can also increase return on investment in their novice teacher strategy by retaining new teachers beyond their first or second year. This finding reflects research showing the most rapid increases in teacher effectiveness occur during the first five to seven years in the classroom, as well as the experience of school and system leaders who have long struggled with churn among novice teachers.[11]

As Figure 9 indicates, 58 percent of teachers recruited directly from traditional (non-residency) education schools in the systems we studied remained in the district into their third year of teaching; this retention level was consistent across all three systems. Models like Teach For America, which include several weeks of part-time, coach-supported teaching during summer induction and are typically designed around a two-year commitment, consistently showed lower levels of year three retention, while the residency models we studied had the highest retention rates.

FIGURE 9

In our sample, teachers from residency programs had the highest retention rate after three years.
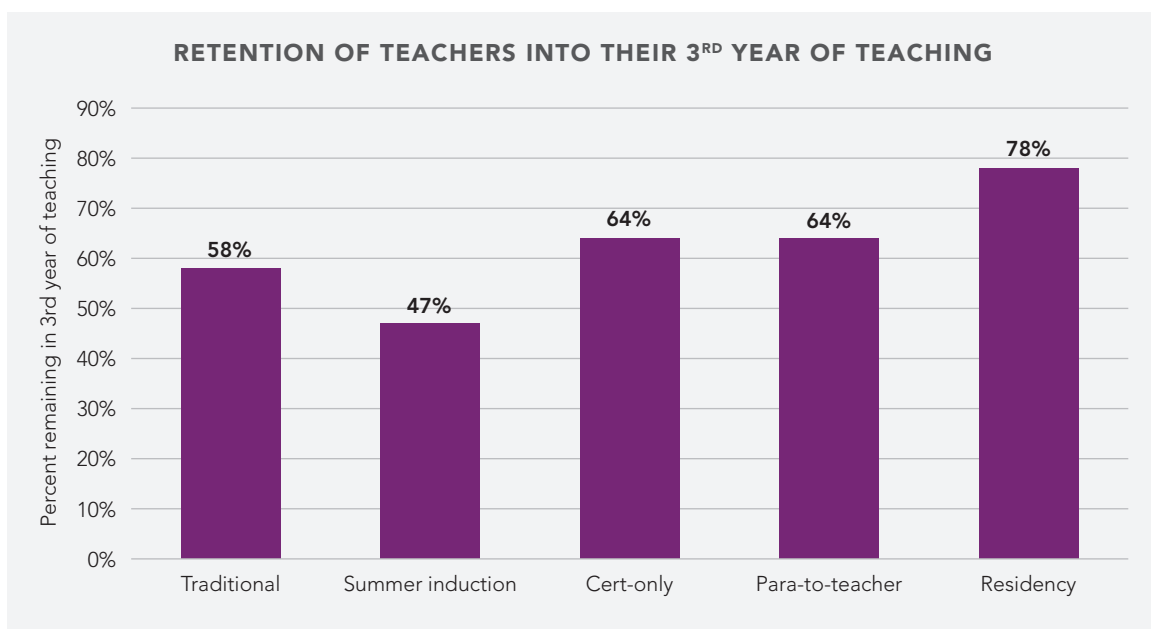
RETENTION OF TEACHERS INTO THEIR 3RD YEAR OF TEACHING

Data represent straight, unweighted averages for all relevant pathways across three districts, projected based on snapshot data of year-over-year retention rates.
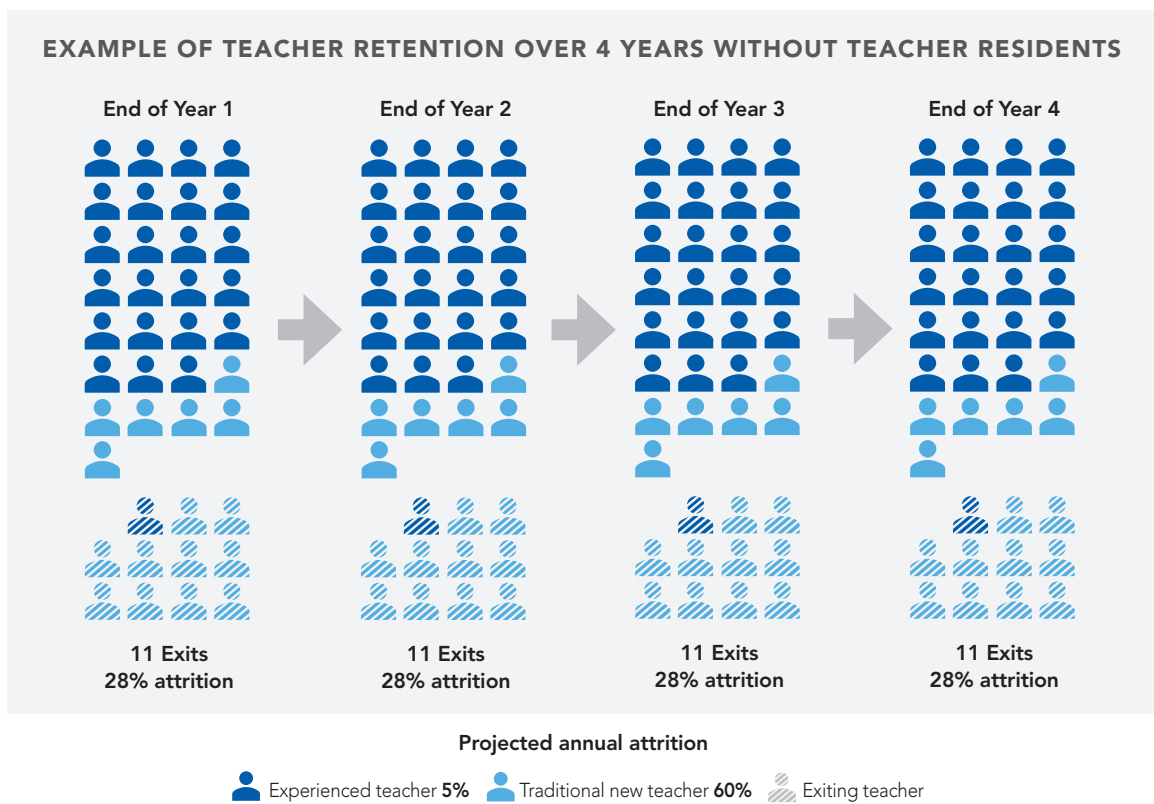
Source: District HR data, ERS analysis

While it's difficult to attribute a specific cause for this gap, it is notable that **the residency models we studied incorporate teacher support and financial incentives that encourage participants to remain in the classroom for three or four years, depending on the program**. System leaders can prioritize partnerships that include similar incentives and structures. The greatest benefits come when systems and their partners foster *strategic* retention, by releasing persistently struggling teachers and retaining early career teachers who are at least minimally effective and demonstrate potential for growth.

By filling open teaching positions with former residents, school leaders have a better chance to break the vicious cycle that persistent teacher turnover creates. Figure 10 demonstrates how this could work for a school with 40 teachers that includes 16 novices, ten of whom leave in the average year.

FIGURE 10
If school systems can encourage residents to stay longer than average, they will reduce overall turnover in their schools.

EXAMPLE OF TEACHER RETENTION OVER 4 YEARS WITHOUT TEACHER RESIDENTS

End of Year 1	End of Year 2	End of Year 3	End of Year 4
11 Exits	11 Exits	11 Exits	11 Exits
28% attrition	28% attrition	28% attrition	28% attrition

Projected annual attrition

Experienced teacher **5%**   Traditional new teacher **60%**   Exiting teacher

By hosting six teaching residents each year—five of whom are projected to stay at the school based on their performance as residents—the school's attrition rate could drop by half by year four.
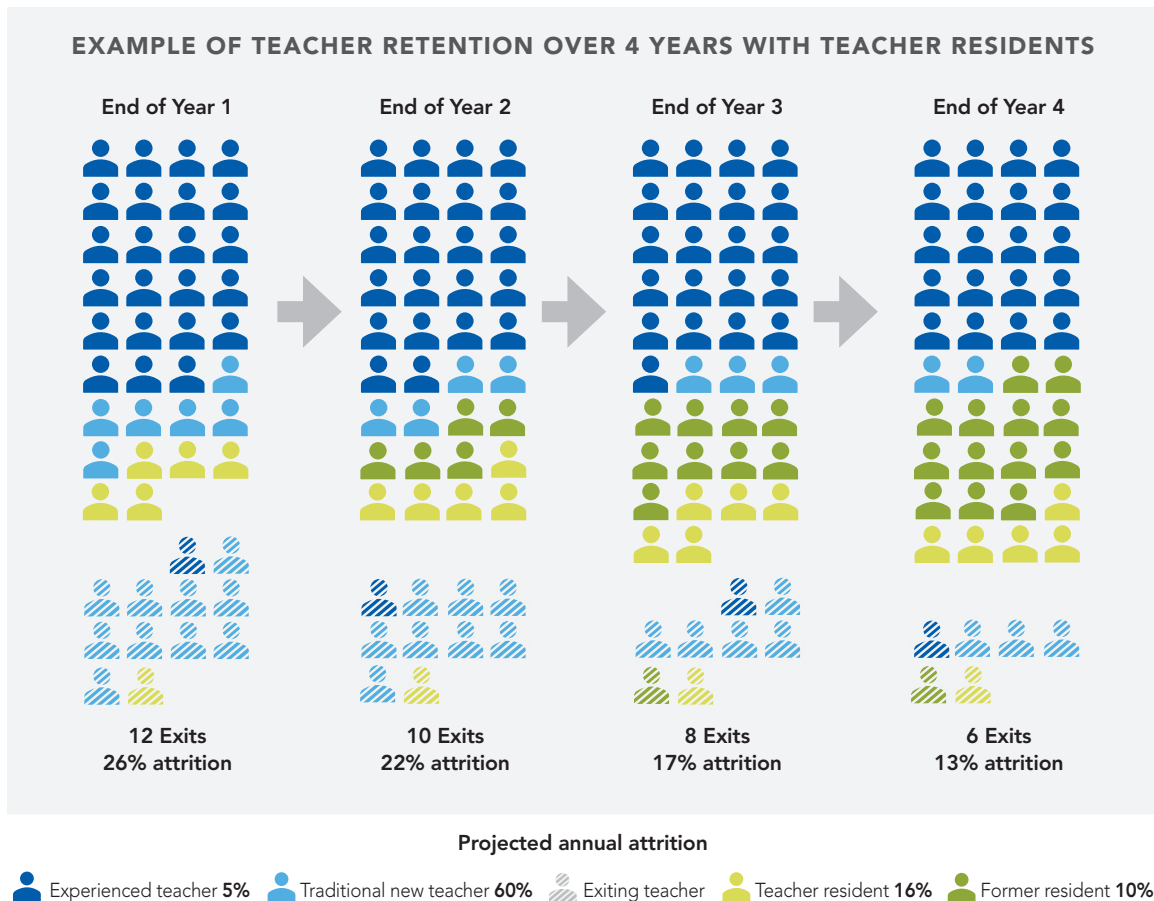
If school systems can encourage residents to stay longer than average, they will reduce overall turnover in their schools.

EXAMPLE OF TEACHER RETENTION OVER 4 YEARS WITH TEACHER RESIDENTS

End of Year 1	End of Year 2	End of Year 3	End of Year 4
12 Exits 26% attrition	10 Exits 22% attrition	8 Exits 17% attrition	6 Exits 13% attrition

Projected annual attrition

Experienced teacher **5%**   Traditional new teacher **60%**   Exiting teacher   Teacher resident **16%**   Former resident **10%**

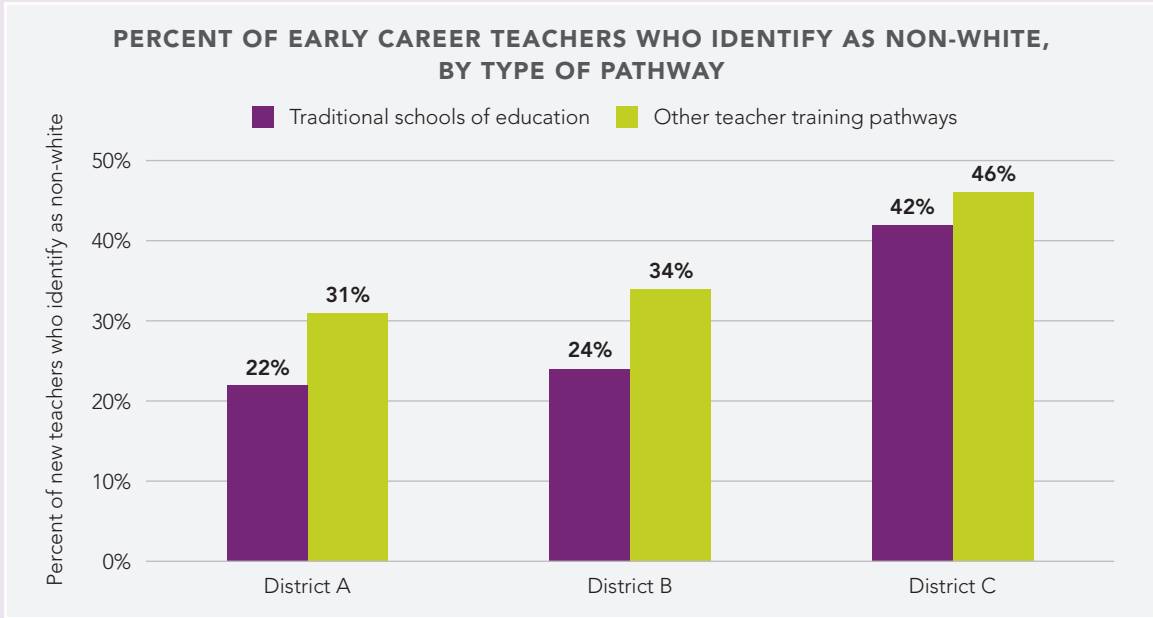## Increasing the diversity of the new teacher pipeline

Leaders in many systems aim to recruit and retain a teaching force that reflects the backgrounds of their students. In each of the districts we studied, at least 74 percent of students identify as Black, Latino or otherwise non-White. While the incoming teacher force does not yet reflect this level of diversity, evidence indicates that alternative pathways, including teacher residency programs targeting high-need schools, bring on average greater ethnic diversity than traditional sources for new teachers.

FIGURE 11

In all three districts, more teachers of color enter teaching through alternative pipelines than through traditional ones.

PERCENT OF EARLY CAREER TEACHERS WHO IDENTIFY AS NON-WHITE, BY TYPE OF PATHWAY

Legend:
- Traditional schools of education
- Other teacher training pathways

Y-axis: Percent of new teachers who identify as non-white (0% to 50%)

District A: 22%, 31%
District B: 24%, 34%
District C: 42%, 46%

Data represent straight, unweighted averages for all relevant pathways across three districts.

Source: District HR data, ERS analysis

Like Americans in any sector of our economy, teachers of color are more likely to come from lower-income households. This means that system leaders who seek to diversify their teaching force should work with their partners to mitigate the total costs incurred by incoming candidates—which can total tens of thousands of dollars[12]—while managing system costs as well.

FIGURE 12

There are various types of financial support structures available to pre-service teachers[13]

Financial support structure	Use to...
Stipends	Lower the financial barriers to participate in a teacher preparation program, particularly full-time programs when the candidate cannot also continue to work.
Tuition grants and loans e.g. AmeriCorps grants	Lower the financial barrier posed by program tuition costs.
Tuition reimbursement	Promote retention of new teachers when conditioned on staying in the district. This can be further conditioned or the reimbursement amount can work on a sliding scale that depends on teachers working in hard-to-staff schools or subjects or matching other hiring priorities for the district.
Loan forgiveness	Combine the benefits of the previous structures, lowering financial entry barriers for candidates and encouraging them to find and stay in teaching jobs in the district.

Recommendation 4: Reallocate and target school- and system-level investments

Capturing the full potential benefits of strategic new teacher recruitment and support still requires significant resources, and district leaders often feel hard-pressed to find the funds to sustain the investment. As we described earlier, districts invest as much as $25,000 per new teacher in partnerships for a well-supported residency model, and in some cases may incur internal costs of up to $5,000 per new teacher for teacher-leader compensation, new teacher induction and system-level program management. In a large urban district, if the strategy were applied to all novice teachers hired in a given year, these costs could add up to more than 1 percent of the system's total operating expense.[14]

Fortunately, by taking a strategic approach to thinking about both school- and system-level resource use, most districts *can* free up resources to fund investments in residencies and other critical early career supports for teachers—if leaders are willing to make the tradeoffs. Here are three sets of resources that can often be made available to support strategic teacher residencies:

Redirect investment in district-driven professional development. Large urban districts typically invest as much as 2.4 percent of operating expense in system-wide professional development workshops and district-provided instructional coaches.[15] Much of this investment is limited in its impact on teaching and learning, especially compared with school-specific, job-embedded supports.

For example, instructional coaches who are assigned by the district and work across multiple schools are often spread thin, able to spend just a couple of hours per month with each teacher in their portfolio, and struggle to integrate themselves into the fabric and culture of each school. Similarly, while some system-wide workshop time is crucial for establishing systems, structures and culture in schools, system leaders often have little data to determine if these workshops drive meaningful change in teacher practice or student outcomes and anecdotal evidence indicates that the impact is severely limited.

Reallocate lower-impact, school-level positions. As part of their pre-service teaching experience, residents can often fulfill many responsibilities that are currently covered by other staff, often with more impact on student learning.

For example, schools could assign residents to provide supports currently assigned to general education paraprofessionals or interventionists, creating more opportunity for students to receive deeper instructional support and for residents to develop their teaching skills. Where a partner

program ensures residents are dual-certified for special education, this strategy could be extended for residents to provide services similar to what special education paraprofessionals do. The strongest paraprofessionals also might be strong candidates for residencies that help them transition to full-time teaching roles, redirecting cost while supporting the professional growth and impact of existing team members.

In addition, residents can assume substitute teaching responsibilities and provide after-school or other support paid for on a "per-session" basis, either as part of their pre-service experience or at a lower per-session or per-diem cost than is paid to traditional teachers. For example, in a school with five residents who typically co-teach with an experienced teacher, each could serve as a substitute one day each week, increasing the resident's pre-service teaching experience and filling a crucial need for the school. (On the day the resident serves as a substitute, the lead co-teacher would teach independently.) This strategy would allow school leaders to reallocate substitute dollars from their budget.

School and district leaders can also rethink allocation of non-instructional staff positions, such as clerks, administrators and behavior specialists. Although residents are less likely to fulfill these responsibilities, they often can provide greater returns in student learning, justifying the shift in investment.

Optimize teacher schedules and non-personnel investments. An optimized staff schedule can make it possible for school leaders to reduce the number of teaching positions required to educate all students, freeing up additional resources for teacher leadership stipends and other resident support. In many schools, teachers' instructional time is limited by non-instructional responsibilities, such as lunch, recess or dismissal duties. School schedules also often feature unbalanced staffing models where, due to variations in class size and/or teacher assignment, some teachers support far fewer students than others. In still other cases, overall class sizes are far below district or state guidelines, with minimal positive impact on student performance.[16]

Finally, school leaders can take a close look at other non-personnel investments, such as budgets for supplies, instructional materials and certain extracurriculars, which may be left unspent in many years and could be proactively repurposed to fund new teacher residencies.

FIGURE 13

Schools and systems can strategically reallocate resources to support the cost of residents.

POTENTIAL OPPORTUNITIES TO REALLOCATE RESOURCES TO TEACHER RESIDENCIES

Strategic Shift	Reallocate...	Pays for __ residents...
Refocus coaching investment on new teacher support	One instructional coach position	5
Optimize class schedules and assignments	One teaching position	3.5
Reduce or reassign administrative responsibilities	One clerk position	2
Reassign paraprofessional responsibilities to residents	One paraprofessional	1.5
Reduce non-personnel spending	10 percent reduction in one school	1
Reduce teacher time in district-provided workshops	One day of PD stipends for teachers in one school	1
Assign substitute or after-school teaching to residents	Two substitute days per week	0.5

Source: District and program financial files, ERS analysis.

Federal funding rules under ESSA support these shifts. While many systems can make these shifts with general fund dollars, the federal Every Student Succeeds Act (ESSA) makes it possible to fund teacher residencies using Title dollars.

To the extent that residencies are part of a district's strategy for reducing resource inequities, leaders may be able to leverage Title I dollars for these efforts. Title II funds may be used for teacher recruitment and retention efforts, "particularly in low-income schools with high percentages of ineffective teachers"—precisely the contexts in which teacher residents may have the greatest impact. Title II funds can also be used to "recruit qualified individuals from other fields to become teachers," enabling districts to leverage residencies to attract mid-career professionals to teaching.

These federal guidelines are designed to encourage district leaders to rethink use of Title I and II resources, which can account for as much as eight percent of a district's operating expense. Median

Title I and II spending across 15 large urban districts ERS has studied exceed $400 per student, the vast majority of which comes from Title I. In a system of 50,000 students, that median expenditure level would total more than $20 million annually. Even assuming the highest-cost model for a district, freeing up 10 percent of Title funds for strategic teacher residencies could support anywhere from 65 to 80 residents annually.[17]

FIGURE 14

School systems can potentially repurpose Title I and II dollars to support teacher residencies.

PER-PUPIL TITLE I AND II INVESTMENTS IN 15 LARGE URBAN DISTRICTS

Legend: ■ Title I $pp ■ Title II $pp

Bar values (left to right): $948, $819, $726, $613, $591, $550, $422, $406, $406 (Median), $400, $345, $345, $269, $219, $173, $172

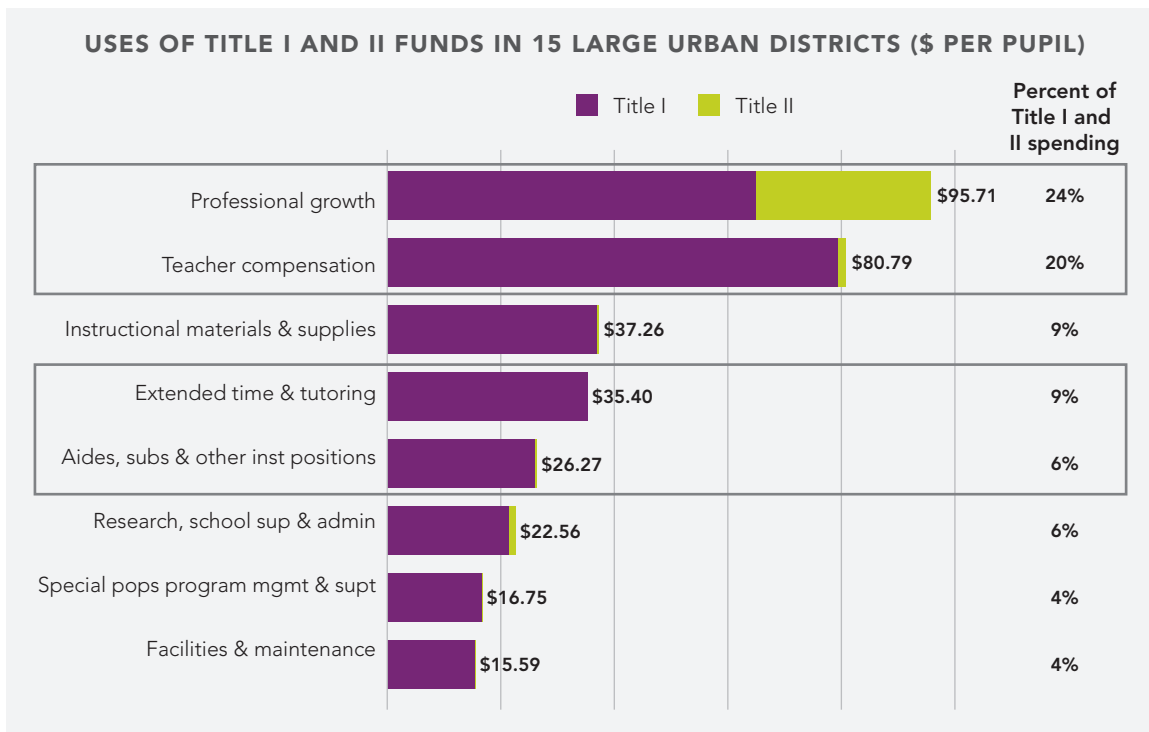| % of total per-pupil spending	6.5%	7.9%	3.4%	6.1%	3.0%	2.9%	4.6%	5.1%	3.4%	3.6%	2.9%	4.2%	3.0%	3.1%	2.2%	1.3%
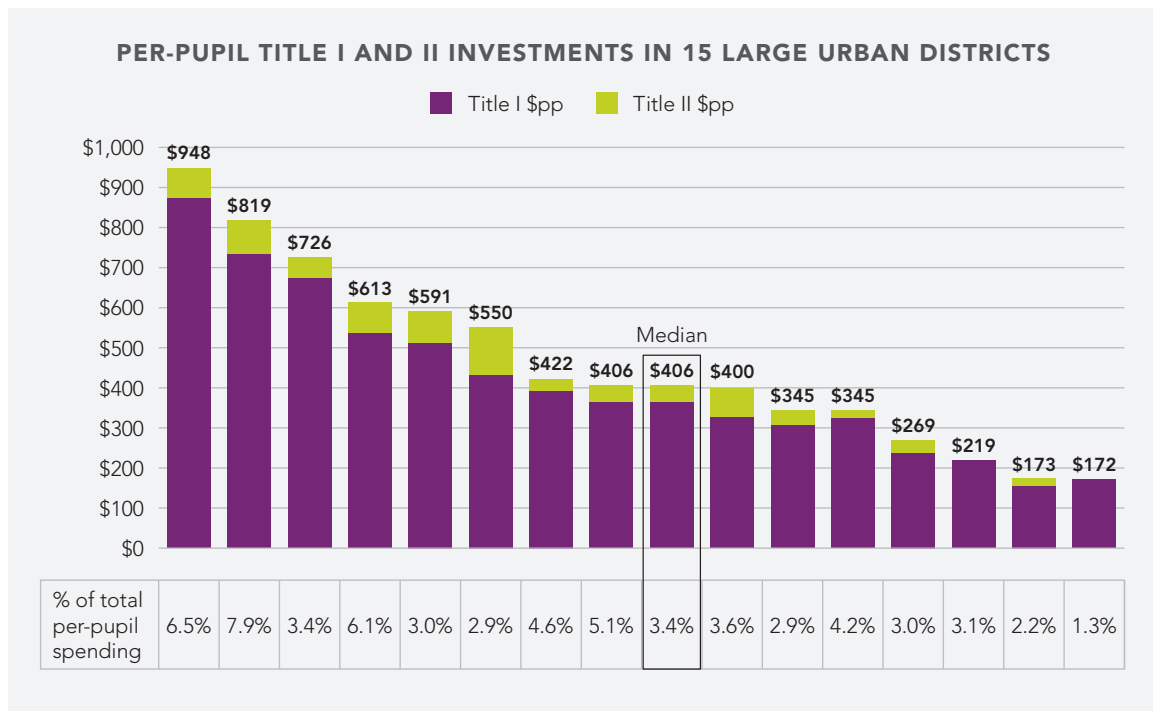
Source: District financial and HR files, ERS analysis

Although there is no federal warehouse for such data, our analysis of spending in these 15 systems help paint a picture of how large urban systems deploy Title I and II resources.[18] Investments in professional growth, teacher compensation, extended time and tutoring, aides, substitutes and other instructional positions—which commonly account for nearly 60 percent of combined Title I and II spending—are candidates for reallocation to ensure the most strategic use of resources. Other investments in instructional materials, facilities, school supervision and administration may also be made available for reallocation.

School systems could consider repurposing Title I and II funds from areas such as professional growth, which may currently be invested in strategies like one-off, districtwide workshops which do not significantly improve teaching.

USES OF TITLE I AND II FUNDS IN 15 LARGE URBAN DISTRICTS ($ PER PUPIL)

	Title I / Title II	Percent of Title I and II spending
Professional growth	$95.71	24%
Teacher compensation	$80.79	20%
Instructional materials & supplies	$37.26	9%
Extended time & tutoring	$35.40	9%
Aides, subs & other inst positions	$26.27	6%
Research, school sup & admin	$22.56	6%
Special pops program mgmt & supt	$16.75	4%
Facilities & maintenance	$15.59	4%

Note: Dollar-per-pupil ($pp) is calculated by multiplying median percentage of Title I/II dollars applied to each function to the median $pp spend on Title I ($363 pp) and Title II ($43 pp).

Source: District financial and HR files, ERS analysis.

Recommendation 5: Design schools to support rookie teachers

High-performing schools deliberately organize people, time and money to create the best possible conditions for student learning. This is the work of Strategic School Design.[19] **An aggressive approach to recruiting, developing and retaining incoming teachers through teacher residencies—particularly if concentrated in high-need, hard-to-staff schools—can catalyze implementation of strategic school designs that break down the traditional "one-teacher-one-classroom" model and create radically improved conditions for teaching and learning.**

Strategic designs that leverage pre-service residents[†] can be implemented at the classroom-, grade-, or school-wide level. Pairing these strategies with the resource reallocation options outlined in Figure 15 can create a cost-neutral approach for the school.

No matter the approach, system leaders must ensure that pre-service residents and other rookie teachers get opportunities for both shelter *and* development. This means they need:

- A school leader who is deeply invested in their development and willing to break down traditional one-teacher, one-classroom structures in service of strengthening rookies' skill and impact;

- Guiding teachers who are similarly invested in developing rookie teachers and have the capacity to both provide high-quality instruction and serve as expert coaches, with support grounded in a deep focus on the curricula being taught;

- Staffing models that reduce "teaching loads" (i.e. the number of students or preps) for rookie teachers, and create space for deliberate cycles of observation, reflection and practice that can rapidly improve teacher impact.

The following models are a variety of possible options for best supporting rookie teachers through shelter-and-develop models. We focus specifically on options for pre-service teacher residents, but in the Growing Great Teachers Toolkit we offer models that work for other rookie teacher types.

[†] In light of the potential for deeper, longer-term impact from partnerships built on intensive, supported pre-service clinical practice, the models we describe here are based on inclusion of full-time teacher residents in schools. School and system leaders can adapt these models for less intensive approaches that imply less change in schools; leaders can also adapt these models to provide strategic support to novice teachers who are not teacher residents.
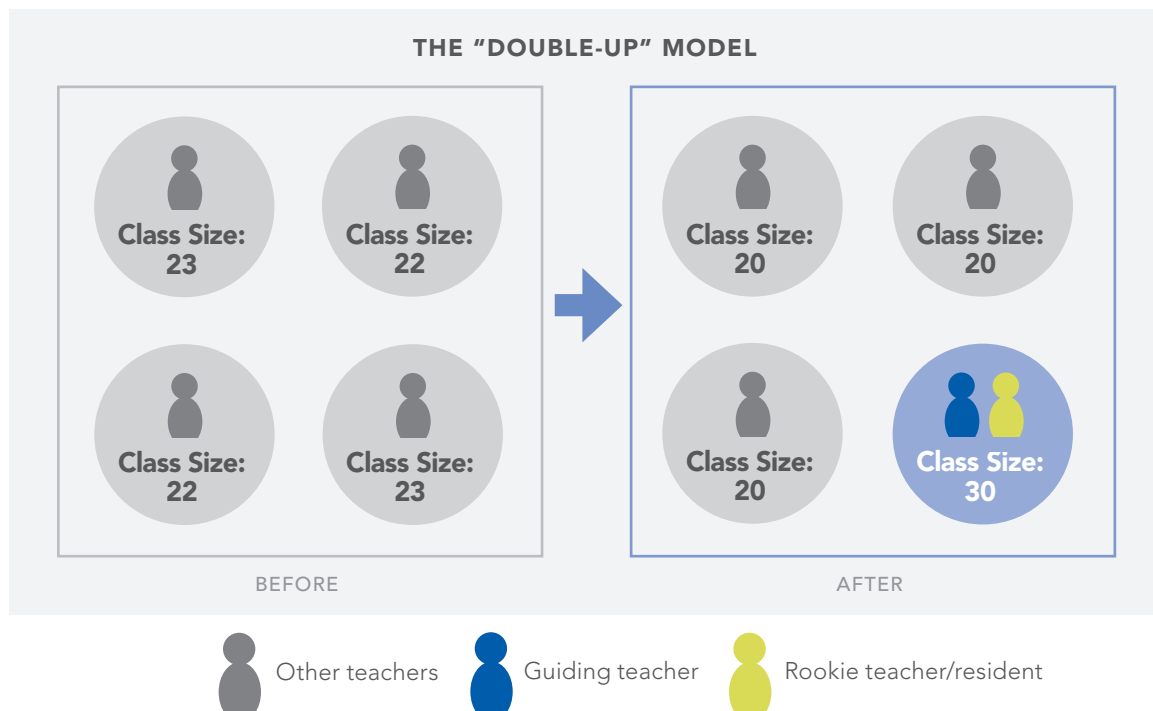
The "Double-Up" Model

Consider an elementary school with approximately 90 students per grade. Traditionally, these students would be organized into four "strands," or homerooms, of about 23 students each, with homeroom teachers working largely independently to educate the students in their class.

A pre-service resident could be assigned to work in one teacher's classroom, observing instruction and occasionally leading a lesson. This "guiding teacher" should have a strong track record of impact on student learning, as well as training on how to coach adults. However, without any other adjustments this creates an equity challenge, because one set of students benefits from instruction by a high performing teacher *and* smaller group sizes with the teaching resident working in the same classroom.

A more strategic approach would be to vary class sizes to reflect the differences in teacher capacity and placement of the resident in one classroom. The guiding teacher/resident pair could support a larger class—in this case, 30 students, for a student: teacher ratio of 15:1—with the remaining students in the grade level distributed evenly across the other three classrooms, for a student: teacher ratio of 20:1.

FIGURE 16

A resident pairs with a master teacher with an increased class size, lowering class size elsewhere.
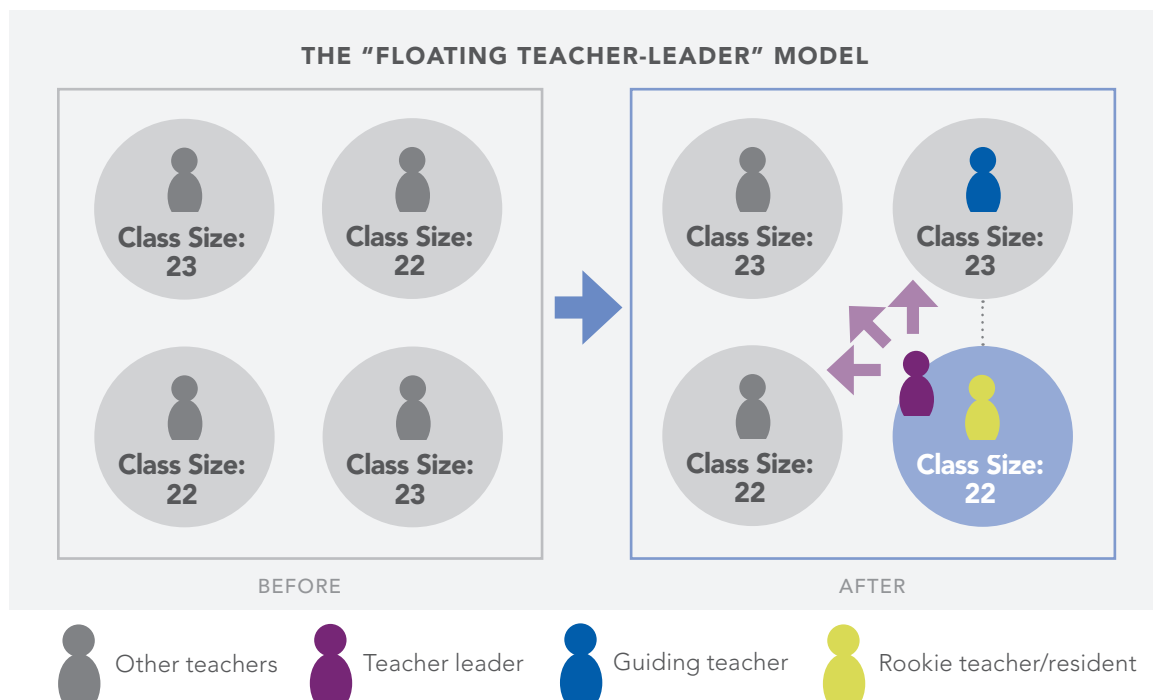

THE "DOUBLE-UP" MODEL

BEFORE

Class Size: 23
Class Size: 22
Class Size: 22
Class Size: 23

AFTER

Class Size: 20
Class Size: 20
Class Size: 20
Class Size: 30

Other teachers · Guiding teacher · Rookie teacher/resident

The "Floating Teacher-Leader" Model

The school could hire a full-time resident to work across the grade-level teaching team. This resident could still be based in one teacher's classroom, while that highly-effective teacher takes on a leadership role supporting all of her fellow grade-level teachers (similar to the Multi-Classroom Leader model in Public Impact's Opportunity Culture framework). Using some of the time when the pre-service resident is leading instruction, the teacher-leader could observe and provide real-time feedback to her peers, while also modeling high-quality instruction to create job-embedded professional learning opportunities. A second experienced teacher could serve as the resident's guiding teacher by providing personalized support to the resident during collaborative planning. The resident would also benefit from additional release time to observe or co-teach with other experienced teachers on the team, or receive more structured professional development and coaching.

As with the "Double-Up" model, the introduction of a full-time resident reduces the grade-level student-teacher ratio from 22 to 18; unlike the "Double-Up" model, the potential for targeted small group instruction is extended across all classrooms. For the "Floating Teacher-Leader" model to work well, district and state policy must allow residents who are not teachers-of-record to lead a classroom independently for some portion of the day. A limited version of this model might have the teacher-leader step out for only portions of a lesson to observe other teachers; a more robust version might have them leave for entire periods.

FIGURE 17

Resident is based in teacher-leader's classroom, which frees teacher-leader to support other teachers through observation and modeling.

THE "FLOATING TEACHER-LEADER" MODEL

Class Size: 23

Class Size: 22

Class Size: 22

Class Size: 23

Class Size: 23

Class Size: 23

Class Size: 22

Class Size: 22

BEFORE

AFTER

Other teachers · Teacher leader · Guiding teacher · Rookie teacher/resident
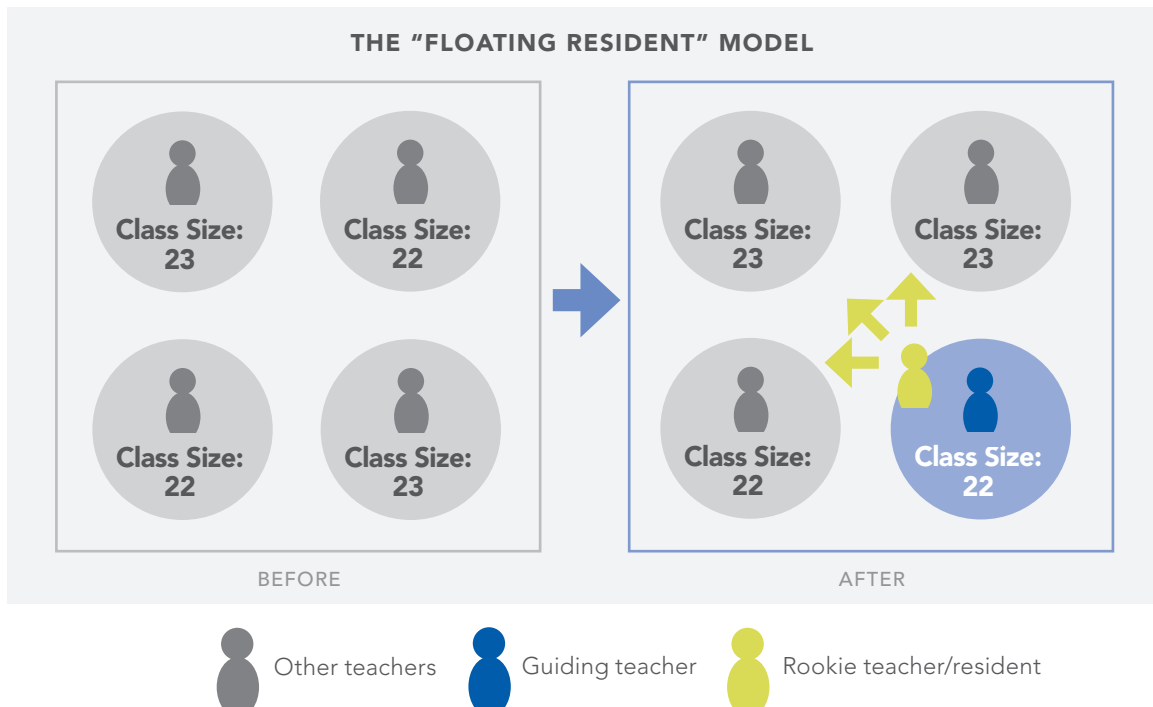
The "Floating Resident" Model

Implementing the "Floating Teacher-Leader" model is more difficult in certain circumstances, such as systems where collective bargaining agreements prohibit pre-service residents from leading instruction in a classroom without direct supervision. One variation on this model—feasible with or without these types of restrictions—is to maintain the "standard" classroom assignments but leverage the resident to provide push-in support to all classrooms in the grade-level (while still assigning one teacher in the grade-level to serve as a guiding teacher for the resident).

FIGURE 18
A resident is based in a guiding teacher's classroom, but pushes in to other classrooms to work with small groups and observe other teachers.

THE "FLOATING RESIDENT" MODEL

BEFORE

| Class Size: 23 | Class Size: 22 |
| Class Size: 22 | Class Size: 23 |

AFTER

| Class Size: 23 | Class Size: 23 |
| Class Size: 22 | Class Size: 22 |

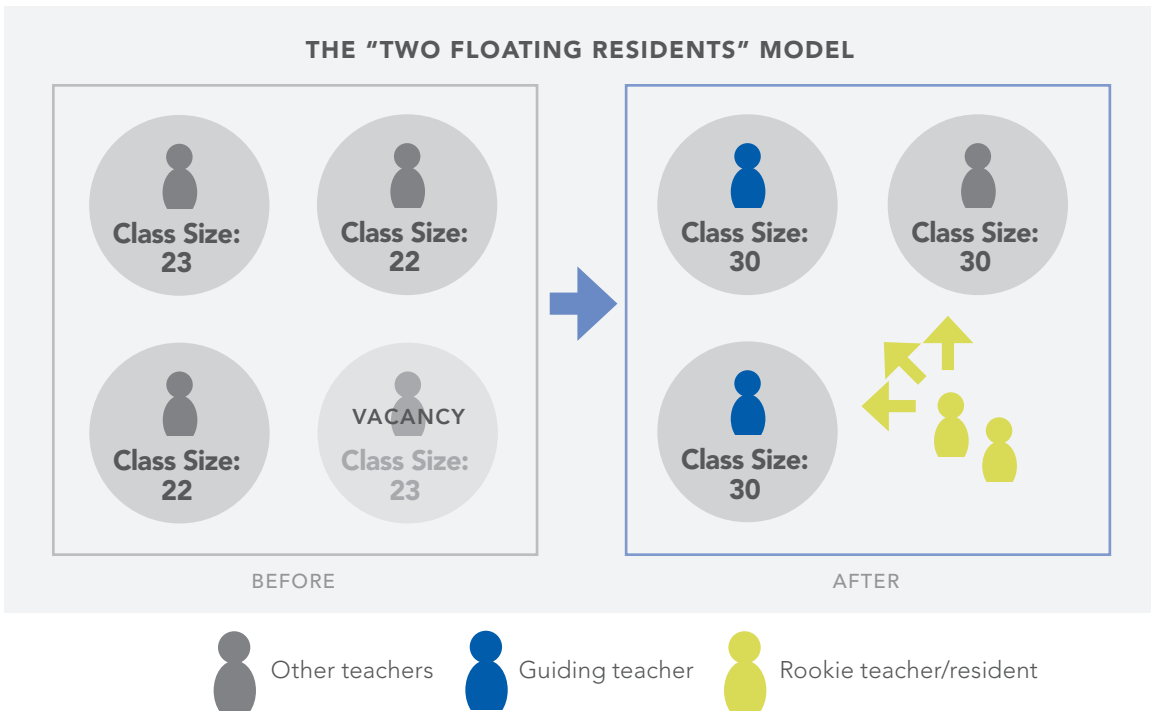Other teachers · Guiding teacher · Rookie teacher/resident

The "Two Floating Residents" Model

In schools where leaders are challenged to fill all open positions, there is the potential to reduce the number of homerooms in a grade by one, and instead replace one homeroom teacher with two residents. As in the "Floating Resident" model, the residents would provide push-in support to all remaining classrooms, while each could be paired with a guiding teacher who leads one of the other classrooms.

While this strategy would increase average class size, it would reduce student-teacher ratio, creating more opportunities for small group instruction and giving residents exposure to teaching practice in three separate classrooms. In schools facing significant numbers of vacancies, this strategy can reduce the pressure to fill open positions with long-term substitutes, while also providing a pipeline of well-trained teachers who could ultimately fill open roles on a full-time basis. As with the other examples, two of the experienced teachers serve as guiding teachers for the two residents, further supporting their growth and development in year one.

FIGURE 19
Remove one homeroom, increase class sizes in the others, and provide two residents to push in to other classrooms to work with small groups, co-lead instruction, and observe.

THE "TWO FLOATING RESIDENTS" MODEL

Class Size: 23 — Class Size: 22
Class Size: 22 — VACANCY Class Size: 23

BEFORE

Class Size: 30 — Class Size: 30
Class Size: 30

AFTER

Other teachers — Guiding teacher — Rookie teacher/resident

Schools as "New Teacher Academies"

A more comprehensive approach would be to extend strategies like these across an entire school, creating a "new teacher academy" that serves as a hub for teacher development and instructional improvement. Schools that serve the highest-needs students often host the highest number of rookie teachers, creating a vicious cycle of talent drain in the very schools where a stable base of teaching talent is most crucial. System leaders should continue to develop incentives for the most effective teachers to teach in these high-need schools. At the same time, these schools offer a unique opportunity to infuse large numbers of residents and catalyze more fundamental shifts in how teaching and learning occur.

A new teacher academy leverages the teacher assignment, teaming and leadership strategies outlined on previous pages, but at a larger scale than any single grade-level or department. For school leaders and their teams who are looking to stimulate increases in student performance, this model offers several unique advantages:

- **More instructional staff.** In systems where school budgets are calculated based on actual (not average) teacher salaries, the aggregate cost of instructional positions in a school with a high proportion of less experienced (and lower paid) teachers may create an opportunity to hire additional teachers, further reducing student-teacher ratios and creating more opportunities for small group, differentiated instruction.

- **High-quality development opportunities.** Those same small groups of students offer a powerful context for new teachers to develop their instructional skills. Relieved of the challenge of managing a large classroom, residents and novices can focus on the process of teaching and learning in a setting that also benefits students in need of personalized attention.

- **Magnets for teacher-leaders.** A school that supports several new teachers requires more teacher-leaders and guiding teachers, giving it the potential to become a more desirable destination for the system's highest-impact teachers.

- **Higher retention and stronger school culture.** As shown in Figure 10, the introduction of a group of teaching residents, combined with strategic retention incentives, can radically reduce long-term churn. With increased staff stability, school leaders have the potential to initiate a shift in adult culture, building an environment where everyone—administrators, teachers and students—are first and foremost learners.

Conclusion

System and school leaders continue to wrestle with the dual challenge of how to provide high-quality instruction for all students *and* how to address persistently high teacher turnover in our highest-need schools. Pathways into teaching that include high-quality pre-service training experiences, such as strategic teacher residencies, offer a promising opportunity to address both these challenges within the resource constraints that many districts face.

Investments in pre-service training and rookie teacher supports can have a significant impact on teaching and learning, at a lower cost and with more practicality than other potentially high-impact strategies, such as radical class size reductions or significant increases in instructional time through 1:1 tutoring. These investments can have the greatest impact on teaching and learning when leaders:

1. **Work with a portfolio of high-quality teacher preparation providers**, with a focus on programs that build in extended pre-service clinical practice opportunities for candidates.

2. **Place well-supported rookies in otherwise hard-to-staff positions**, where incoming teachers are most likely to replace long-term substitutes or less effective teachers.

3. **Create multi-year retention incentives**, including explicit retention commitments and financial supports for candidates coming from traditionally under-represented communities.

4. **Reallocate and target existing school- and system-level investments** to ensure high-quality support for pre-service and early career teachers, with strategic investments in stipends for teaching candidates, while also investing in new teacher leadership pathways.

5. **Design schools to support new teachers**, by using the injection of novice or pre-service teachers as a catalyst for implementing [Strategic School Designs](#) that enable targeted instruction for students, leadership opportunities for the most effective teachers and a powerful context for rapidly developing pre-service teachers.

Armed with models for integrating and supporting teaching residents in high-need schools and strategies for sustainably funding these models, school and system leaders have the potential to radically increase teacher retention, teacher effectiveness and student performance in their most challenged schools—schools whose turnaround is critical to the long-term success of our educational systems and the life trajectories of all its students.

Appendix A

ERS studied teacher recruitment and support pathways in three large urban districts across the country:

Region	Approx. Enrollment	Avg rookie teachers hired/year	Models studied				
			Traditional	Residency	Summer induction	Cert-only	Para-to-teacher
East Coast	80,000	400	X	X	X		
West	80,000	375	X	X	X	X	X
Midwest	40,000	225	X		X		X

Appendix B

Methodology for impact estimates

Figure 2 includes projections that a teacher coming through a high-quality residency program, placed in a hard-to-staff role and retained for four years could generate more than four months of incremental learning for her students. Following are the assumptions we used to build this estimate:

Impact of a high-quality clinical practice program on student performance

We estimated this value based on the new teacher pathway with the largest increase in first-year teacher evaluation ratings relative to the traditional pathway. Teachers from this residency program, (which also had a relatively large sample size compared to other pathways we studied), scored on average in the 33rd percentile on their first year evaluation. By contrast, teachers from traditional pathways scored on average in the 26th percentile.

The difference between 33rd and 26th percentile of effectiveness represents 0.2 standard deviations in the distribution of teacher effectiveness. Kane, Rockoff and Staiger found that a one standard-deviation increase in teacher effectiveness can cause a 0.12 standard deviation increase in student results on a standardized test—so we would expect a 0.2 standard deviation increase in teacher effectiveness to increase student learning by 0.024 standard deviations.[20]

Impact of retention on student performance

We projected impact of a program with incentives to retain teachers for four years. Since not all teachers stay for four years, we calculated an "average" experience level for the cohort of teachers who have come through a residency model, using levels of attrition observed in such programs. The "average" experience of a former resident teachers in these conditions is between one and two years.

Based on research from Papay and Kraft, we estimate that a teacher with this level of experience would increase student learning by approximately 0.05 standard deviations compared to a teacher in their very first year, which we assume is the next best alternative.[21] Since many teachers may choose to stay past the end of their four-year commitment, this could understate the impact of increased retention.

Impact of long-term substitutes on student performance

Rockoff and Hermann found in one large urban system that that long-term substitutes perform on average of a teacher at the 20th percentile of effectiveness.[22] Among the three districts we studied, the median district had an average effectiveness of a novice teacher in the 29th percentile.[23] The difference between the 20th and 29th percentiles is approximately 0.29 standard deviations, or 0.035 standard deviations on student achievement.

Papay and Kraft's research comes from New York City Public Schools' Absent Teacher Reserve, a pool of teachers displaced from their classrooms because of "grade reconfiguration, reduction in student enrollment, programmatic change, or phase out or closing of their school."[24] Because most other districts hire substitutes with a much lower level of credentialing and experience than teachers-of-record, it is plausible that the quality of substitute teaching in the New York City schools is higher than in most districts around the country. If long-term substitutes in New York perform at the 20th percentile of the teacher effectiveness distribution, long-term substitutes in other districts might perform at the 15th percentile. This would increase the impact of replacing a long-term substitute with a permanent teacher by 0.023 standard deviations of student achievement.

Converting from standard deviations to years of learning:

To translate these standard deviations into a more readily interpretable form, we have presented them as a fraction of one year of average learning. Because the equivalent of one year of learning in standard deviations depends on the grade and subject in question, we used the learning accrued between grades five and six in reading, which is the median value for reading growth in regularly tested grades (3–8), or 0.32 standard deviations.
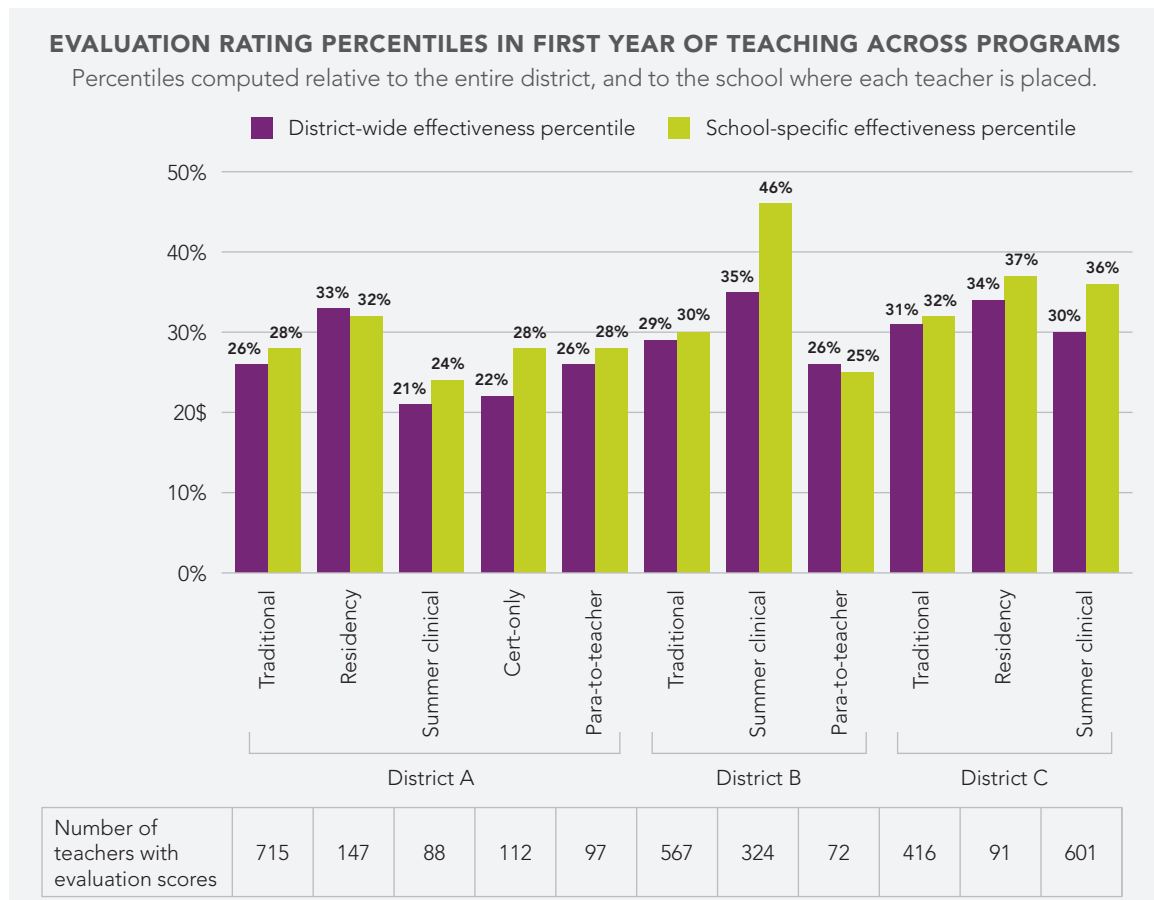
The total standard deviations of change in learning from placing a well-trained first-year teacher in a hard-to-staff role and retaining him or her for four years is 0.024 + 0.05 + 0.035 standard deviations, or 0.109 standard deviations. If 0.32 standard deviations equal one year of learning, then we estimate 0.109 standard deviations equals 34 percent of a student year of learning. At 185 days per year, this translates to 3.1 months of incremental learning. The additional 0.023 standard deviations of student achievement realized if the teacher being replaced is less effective than in our original model yields 0.023 / 0.32 * 185 days, or about two-thirds of a month of additional learning.

Appendix C

Methodology for comparing teacher effectiveness across different teacher pathways

Each of the three districts we studied for this report measures effectiveness in different ways, and each sets a different bar to determine what is considered "effective" or "ineffective" teaching in their district. To understand the effectiveness of teachers coming from different pipelines in different districts, we looked at the underlying numeric scores and calculate a single, continuous metric that combines all evaluation measures for a single teacher into one number. We can then use this number to calculate a percentile, showing how that teacher was evaluated relative to other teachers in the district.

One complicating factor in understanding the effectiveness of new teachers from different pipelines is that some pipelines may place more teachers into the most difficult settings. In the schools with more difficult working conditions, it may be harder for a teacher to achieve high evaluation scores than it is for a similar teacher in an easier placement. To address this concern, we also looked at the evaluation scores of teachers relative to the other teachers in their same schools. Under this measure, teachers in schools with conditions that make it hard for any teacher to be evaluated well will not receive a lower score, because they will be compared only to their colleagues within that school.

EVALUATION RATING PERCENTILES IN FIRST YEAR OF TEACHING ACROSS PROGRAMS

Percentiles computed relative to the entire district, and to the school where each teacher is placed.

Legend: District-wide effectiveness percentile | School-specific effectiveness percentile

	Traditional	Residency	Summer clinical	Cert-only	Para-to-teacher	Traditional	Summer clinical	Para-to-teacher	Traditional	Residency	Summer clinical
District-wide	26%	33%	21%	22%	26%	29%	35%	26%	31%	34%	30%
School-specific	28%	32%	24%	28%	28%	30%	46%	25%	32%	37%	36%
	District A					District B			District C		
Number of teachers with evaluation scores	715	147	88	112	97	567	324	72	416	91	601

Additional Resources

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2. Emma Brown. "Teach for America applications fall again, diving 35 percent in three years." The Washington Post. April 12, 2016. https://www.washingtonpost.com/news/education/wp/2016/04/12/teach-for-america-applications-fall-again-diving-35-percent-in-three-years/?noredirect=on&utm_term=.7c3abc38eec6

   Applications rose again in 2017, the last year for which data is available, back up to 49,000. This puts interest where it was in roughly 2012.

3. Interview with Kimberly Steadman, Director of Academics, Edward Brooke Charter School. "Consolidated Annual Report to the Massachusetts Department of Elementary and Secondary Education, School Year 2015-2016," Brooke Charter Schools. July 31, 2016. http://www.ebrooke.org/wp-content/uploads/Brooke-Charter-Schools_Annual-Report_School-Year-2015-to-2016-final-approved.pdf.

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5. Assumes 21 homeroom teachers in base case model, supplemented by six additional homeroom teachers at an annual starting salary of $50,000 plus 15 percent benefits. Cost for six residents assumes $30K in total cost to the system per resident—$25K in stipend and $5K for teacher leadership support.

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13. For more on financial incentives to attract a more diverse teaching force, see Michael Hansen, Diana Quintero, and Li Feng. *Can Money Attract More Minorities Into the Teaching Profession?* (Washington, DC: Brookings, 2018).

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15. Karen Hawley Miles, David Rosenberg, and Genevieve Quist Green. I*gniting the Learning Engine: How School Systems Accelerate Teacher Effectiveness and Student Growth Through Connected Professional Learning*. (Watertown, MA: Education Resource Strategies, 2017). https://www.erstrategies.org/tap/connected_professional_learning

16. See https://www.erstrategies.org/tap/school_scheduling_tools for more on strategic scheduling.

17. Assumes re-allocating $2M in Title funds to support total district costs of $25,000 to $30,000 per resident.

18. Mark Dynarski and Kirsten Kainz. W*hy Federal Spending on Disadvantaged Students (Title I) Doesn't Work*. (Washington, DC: Brookings, 2015). https://www.brookings.edu/research/why-federal-spending-on-disadvantaged-students-title-i-doesnt-work/

19. For more on Strategic School Design, see Karen Hawley Miles, Kristen Ferris, and Genevieve Quist Green. *Designing Schools That Work: Organizing Resources Strategically for Student Success*. (Watertown, MA: Education Resource Strategies, 2017).

20. Thomas J. Kane, Jonah E. Rockoff, and Douglas O. Staiger, "What Does Certification Tell Us About Teacher Effectiveness? Evidence from New York City." *Economics of Education* Review *27*, no. 6 (2008): 615-631. The .12 standard deviation figure calculated by Kane et al. defines teacher effectiveness using only value-added scores, whereas our estimates of teacher effectiveness are based on district-created measures that combine multiple measures including evaluation, value-added scores, and student survey results. We use this quantification of the relationship between student growth and teacher performance because there is no comparable information about the district-specific measures we are observing.

21. John P. Papay and Matthew Kraft, "Productivity Returns to Experience in the Teacher Labor Market: Methodological Challenges and New Evidence on Long-Term Career Improvement." *Journal of Public Economics* 130: 105-119.

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23. In this case, the average effectiveness percentile for a novice teacher is different from the value we used to estimate the impact of high-quality clinical practice. Our estimates of high-quality clinical practice are based on a program in district A, so we needed to use the traditional pipeline in district A for comparison purposes. Because the estimate of the effectiveness of a long-term sub is based on external research, we have chosen to compare it to the average effectiveness percentile of the median district, district B.

24. Papay and Kraft, "Productivity Returns to Experience." 11.

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