Teacher Compensation Models and Advanced Teaching Roles Pilot Programs

Year 2 (2018-19) Interim Report

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Executive Summary

Overview

In 2016, the North Carolina General Assembly provided support for several advanced teaching roles and compensation plan pilots,[1] with a requirement for evaluation of two components of those pilots: their ***Academic and Instructional Impact***; and their ***Impact on the Teaching Profession***. The North Carolina Department of Public Instruction proposed additional evaluation components: a ***Comparative Analysis of Programs***; and ***Financial and Policy Considerations***.

This report—the third in a series of evaluation reports commissioned by the North Carolina State Board of Education—summarizes qualitative results from the second year of the initiative and, for the first time, includes quantitative analyses from the first year of implementation. In general, most of the qualitative indicators were positive, and in the areas for which initial quantitative estimations were possible there also were some signs of positive outcomes.

At this early juncture, however, the evaluation team strongly cautions against giving undue weight to the initial quantitative estimations, for the following reasons: The number of directly impacted teachers and students remains small; differences across the six pilots reduce the overall strength of the analyses; analyses are correlational and not causal; and analyses are limited to one year of data, with some analyses including data from only a few of the pilots.

Quality of Classroom Instruction

Participating teachers (both Advanced Teaching Roles [ATR] lead teachers and the teachers with whom they worked) believed they grew in their:

- Instructional skills;
- Confidence;
- Use of data to inform instruction; and
- Ability to vertically align content and instruction across grades.

Similar to Year 1, some teachers remained cautious about the extent to which the pilots impacted instruction, but these concerns were less pronounced in Year 2. In some statistical models, ATR elementary and middle schools appeared to outpace their matched comparison schools in one-year changes in the degree to which educators helped students meet or exceed their anticipated achievement levels.

[1] Session Law 2016-94, Section 8.7

Evidence of Student Growth

Quantitative analyses indicate that, while positive, one-year changes in student performance were larger for ATR schools on the whole than they were for comparison schools, the differences were not statistically significant, nor were they consistent across all ATR schools.

Attractiveness of the Teaching Profession

Many teachers indicated that a combination of the availability of advanced roles and the salary supplement made participation in the pilots attractive. Administrators believed that the pilots helped them recruit and retain not just lead teachers but also a stronger team of teachers overall.

Recognition to High-Quality Classroom Teachers

Some educators suggested that lead teacher selection criteria might identify some of the best *teachers*, but not necessarily the best *leaders*. Quantitative evidence supported these concerns: Application-year Educator Value-Added Assessment System (EVAAS) scores were higher for successful applicants than for unsuccessful applicants, but application-year leadership ratings for successful applicants appeared to be similar to ratings for unsuccessful applicants. In terms of EVAAS scores only, the candidate pool appeared to strengthen between 2016-17 and 2017-18.

Retention of High-Quality Classroom Teachers

Several lead teachers shared that access to advanced teaching roles gave them a reason to stay in the classroom. Teachers not in leadership roles also indicated that the presence of the pilots influenced their decision to stay in teaching, as well as their motivation.

Support for and Retention of Beginning Classroom Teachers

Relative to Year 1, more teachers believed that the program provided support for beginning teachers. Beginning teachers who worked with lead teachers felt better prepared and believed that they were improving more quickly than they would have on their own; however, it is not yet clear whether the support provided justifies the cost, relative to the cost of other support options.

Other Impacts

Positive Impacts:

- Growth in lead teachers' feelings of *empowerment* and *confidence in their leadership*
- Perceptions of improvement of *overall school culture* as a result of the pilots

Areas of Concern:

- Less-than-unanimous support for differentiated pay among teachers not in lead roles
- Possible mismatches between selection criteria and leadership expectations
- Uncertainty among some teachers not in lead roles about the overall purpose of the initiative

Next Steps

Year 3 of the evaluation (July 2019-June 2020) will include updates to LEA-level implementation, extension of analyses of impacts of the pilots on key outcome measures (including efforts to analyze any emerging quantitative *trends* across outcome years), and initial efforts to identify scalable successes across the pilots. Finally, the Year 3 report also will include implementation lessons learned by the LEAs during the first three pilot years.

The current evaluation contract ends June 2020, so most data collection will end in early spring 2020, with the final report based only on data available at that point. Support from a third-party funder will enhance the qualitative analyses included in the final report and also will allow the team to extend some of that work through December 2020.

Introduction

North Carolina General Assembly Session Law 2016-94, Section 8.7, directs the North Carolina State Board of Education to evaluate the advanced teaching roles and compensation plan pilots described in that law. The law requires evaluation of several components that fall into two broad categories: ***Academic and Instructional Impact***; and ***Impact on the Teaching Profession***. In addition, the North Carolina Department of Public Instruction (NCDPI) proposed evaluation components that fall into two other broad categories: ***Comparative Analysis of Programs***; and ***Financial and Policy Considerations***.

This report—the third in a series of evaluation reports commissioned by the North Carolina State Board of Education—summarizes qualitative results from the second year of the evaluation and, for the first time, includes preliminary quantitative outcome analyses from the first year of implementation.

The Advanced Teaching Roles Pilots Initiative

Legislatively-Prescribed Goals for the Pilot Programs

Per Section 8.7(a) of the enacting legislation, the intent of the pilot programs is to (emphases added):

1. Allow highly effective classroom teachers to ***reach an increased number of students*** by assuming accountability for additional students, by becoming a lead classroom teacher accountable for the student performance of all of the students taught by teachers on that lead classroom teacher's team, or by leading a larger effort in the school to implement new instructional models to improve school-wide performance;
2. Enable local school administrative units to ***provide salary supplements*** to classroom teachers in advanced teaching roles. Selection of an advanced teaching role classroom teacher and award of related salary supplements shall be made on the basis of demonstrated effectiveness and additional responsibilities;
3. Enable local school administrative units to ***create innovative compensation models*** that focus on classroom teacher professional growth and student outcomes; and
4. Utilize local plans to ***establish organizational changes related to compensation*** in order to sustain evidenced-based teaching practices that ***have the capacity to be replicated*** throughout the State.

Participation and Support

The original legislation supported implementation of three-year pilots, to begin with the 2017-18 school year and conclude with the 2019-20 school year. In 2018, legislation expanded the pilot period to eight years and provided funding to support the addition of more Local Education Agencies (LEAs—North Carolina's term for school districts). For the first round of implementation, proposals from six LEAs were selected by the North Carolina Department of Public Instruction (NCDPI): Chapel Hill-Carrboro City Schools, Charlotte-Mecklenburg

Schools, Edgecombe County Schools, Pitt County Schools, Vance County Schools, and Washington County Schools. After the expansion, four more proposals were selected in 2018 for the 2019-20 school year: Bertie County, Halifax County, Hertford County, and Lexington City.[2]

The initial allocation for the 2017-18 fiscal year was $7,180,000, with an additional $3 million ($1 million recurring for three years, 2017-18 through 2019-20) to be distributed among the three largest LEAs each year of the pilot. The disbursement of funds across the six accepted pilot programs is detailed in Table 1. Though the original six LEAs can continue their pilots through 2024-25 and can carry over any funds unspent by 2020, at this time no new state funding has been allocated for those pilot programs for the extension years.

Table 1. Distribution of State-Provided Funding for Pilots

LEA	Total Project Budget	Recommend-ed Funding	Annual Recurring Funding			Total Funding
			2017-18	*2018-19*	*2019-20*	
Charlotte-Meck.	$ 2,645,131	$ 1,947,995	$257,477	$257,477	$182,182	$2,645,131
Pitt	$ 4,810,169	$ 2,161,613	$492,596	$492,596	$542,547	$3,689,352
Chapel Hill-Carrboro	$ 2,258,952	$ 1,096,732	$249,927	$249,927	$275,271	$1,871,857
Vance	$ 898,000	$ 898,000	NA	NA	NA	$ 898,000
Edgecombe	$ 1,002,210	$ 943,480	NA	NA	NA	$ 943,480
Washington	$ 132,180	$ 132,180	NA	NA	NA	$ 132,180
Total	**$11,746,642**	**$ 7,180,000**	**$ 1,000,000**	**$ 1,000,000**	**$ 1,000,000**	**$10,180,000**

The extension of the initiative in 2018[3] included additional funds for new pilots, but the terms of the evaluation were not similarly amended, so this evaluation continues to focus only on the first three years of implementation in the original six LEAs.

Purpose of the Evaluation and Evaluation Questions Addressed by the Current Report

The complete set of questions that guide this evaluation is included in **Appendix A**. This list was revised over the course of the first year of the evaluation to better reflect not only the evolution of the quantitative components of this evaluation (summarized in the *Preliminary Report* [May 2018] and explained in more detail in the **Initial Quantitative Estimations of Pilot Program Impacts** section of the current report) but also the evaluation team's better understanding overall of how implementation of the pilot programs has unfolded across the six participating LEAs.

Because measures for some outcomes will not be available until later in the evaluation cycle, data collected for this interim report are not representative of all of the data that will be collected for the full evaluation. As a result, this report is limited in what it can include with respect to all of the evaluation questions, but updated findings are presented for several of the evaluation

[2] Twelve LEAs submitted proposals for 2017-18; 13 more LEAs applied for 2018-19. Proposals from both rounds can be found here: http://www.ncpublicschools.org/district-humanresources/.
[3] Session Law 2018-5, Section 7.9; funding for FY 2018-19 was increased by $700,000 ($500,000 recurring, $200,000 non-recurring).

questions, as well as initial findings for some of the questions related to estimations of quantitative outcomes (Table 2).

Table 2. Evaluation Questions Addressed in this Report

Evaluation Question	Related Outcome(s) Available for this Report
Q1. Do advanced teaching roles improve the quality of classroom instruction?	Teachers demonstrate quality classroom instruction
	Students exhibit increased interest and engagement in class
	(Indirect) School performance scores increase over time
	Teachers exhibit value-added growth
Q2. Do advanced teaching roles increase school-wide student growth?	Students demonstrate academic growth
Q3. Do advanced teaching roles and/or related local-level salary supplements, either collectively or individually, increase attractiveness of the teaching profession?	Teachers apply for, accept, and remain in positions in participating LEAs because of the initiative
Q4. Do the pilot programs provide recognition to high-quality classroom teachers?	Schools/LEAs provide role-based incentives for lead teachers
	Schools/LEAs recruit and hire/reassign high-quality teachers for advanced roles
Q5. Do the pilot programs support retention of high-quality classroom teachers?	Programs sustain advanced positions
	The proportion of high-quality teachers at participating schools increases
Q6. Do the pilot programs provide assistance to and support retention of beginning classroom teachers?	Lead teachers support new/beginning teachers (e.g., mentor, planning, model strategies, etc.)
	New/beginning teachers remain in pilot school/LEA
Q7. In what other ways do these pilot programs impact high-quality experienced classroom teachers?	*(Other unanticipated/ untracked program impacts ([direct and indirect])*

Data and Methods

Data

Survey Data

Data were collected from five of the six participating LEAs via formal online surveys that were administered to advanced roles teachers, other educators directly impacted by those teachers, school and LEA-level administrators, and students.[4] The survey collected information on program impact related to teacher growth, recruitment, retention, and job attractiveness. Student surveys focused primarily on perceived changes in teacher's instruction and attitude in the classroom. Copies of the surveys are provided in **Appendix B**.

Interviews and Focus Groups

During the second year of pilot implementation (2018-19), the evaluation team conducted a total of 42 focus groups with students, teachers, school administrators, and LEA-level administrators from five of the six participating LEAs.[5] A total of 157 individuals participated in focus groups (Table 3).

Table 3: Focus Group Participants by LEA

	Focus Group Participants				
LEA	***Lead Teachers***	***Teacher Colleagues***	***Admini-strators***	***Students***	**Total**
Chapel Hill-Carrboro	12	9	4	5	***30***
Charlotte-Mecklenburg	15	13	5	8	***41***
Edgecombe	7	10	3	5	***25***
Pitt	16	22	5	0	***43***
Vance	6	9	3	0	***18***
Washington	*0*	*0*	*0*	*0*	***0***
Total	***56***	***63***	***20***	***18***	**157**

The focus group protocols were designed to gather participant's perceptions and experiences of their local pilot programs. Focus groups were approximately 30 to 60 minutes in length and were conducted at school sites or at the LEA's main office. Protocols were slightly amended for Year 2 to encourage respondents to reflect on differences between Year 1 and Year 2 implementation. Copies of the protocols are provided in **Appendix B**.

[4] No responses were received from teachers, administrators, or students in Washington County Schools.
[5] Washington County Schools did not respond to requests to schedule focus groups.

Administrative Data

Because many end-of-year data are not available until the late fall/winter following the previous school year, administrative data for this second interim report are from the first year of the pilots (2017-18[6]) only. Administrative data were provided by seven partners: NCDPI and all six pilot program administration teams.

Data provided by NCDPI span school years 2013-14 through 2017-18 (with data from 2018-19 to be added for the final report) and include school demographics, teacher characteristics, and student achievement—all reported in aggregate at the school level.

Data provided by the LEA pilot administration teams—also aggregated at the school level—primarily highlight features of each initiative as implemented at each participating school, such as grades impacted, number of participating teachers, and teacher application and selection data.

Methods

Pilot Plan and Logic Model Updates

For the *Preliminary Report*, the Team developed narratives for each pilot plan, along with logic models that illustrate how LEA representatives envisioned their plans working. For this report and the previous interim report, these narratives and models were shared with the LEAs for ongoing confirmation of their accuracy. Updates to narratives and logic models that reflect new information and changes in plans between years are included in **Appendix C**.

Survey Data Analysis

For 2018-19, surveys were administered online beginning in April 2019 and closing in July 2019. Lead teachers (*n*=105), other teachers (*n*=215), administrators (*n*=29), and students (*n*=1,311) from five of the six pilot LEAs responded to the survey. Survey data were aggregated within and across groups and were compared to results from prior years to identify a variety of emerging and changing perceptions among groups affected by the Advanced Teaching Roles programs. Results are included in **Appendix D**; select findings also are included in the **Analysis of Year 2 Qualitative Data** section, below.

Analysis of Interview and Focus Group Data

Interview and focus group audio from Year 1 was transcribed and coded by at least one evaluation team member, with inter-rater reliability determined prior to coding all interview data.[7] Because the primary goal for analysis of Year 2 interview and focus group data was to determine whether and to what extent participant impressions had changed with respect to the coded themes identified in the prior year, analysis of data from the 42 Year 2 focus groups was handled differently. Team members reviewed each session for indications of overall or LEA-specific stability or changes with respect to each of the seven themes identified in Year 1

[6] The first year for Chapel Hill-Carrboro City Schools was 2016-17.
[7] 80% Inter-Rater Reliability: reliability = number of agreements/(number of agreements + disagreements); Miles and Huberman (1994).

(aligned with the approved evaluation questions). After this review was complete, the evaluation team integrated new data for each theme into the qualitative sections of this report.

As we did for the first interim report, in most cases, LEA identifiers for focus group quotations and supplemental descriptive passages included in the **Analysis of Year 2 Qualitative Data** section have been removed. In some situations, we will reinstate LEA identifications in the final report in keeping with an end-goal of making recommendations about which pilots appear to be better suited for regional or statewide scale-up. The one exception in this report is for some quotations from Chapel Hill-Carrboro City Schools (CHCCS) focus group participants. By the end of Year 2, it became clear that the structure and purpose of the CHCCS Advanced Teaching Roles pilot (Project ADVANCE) is significantly different enough from those of the other five pilots[8] that inclusion of data from that LEA sometimes requires additional context. As a result, and in keeping with one of the original charges of the enacting legislation to compare the other pilots to the CHCCS program, we have included a section in the CHCCS entry in **Appendix C** dedicated specifically to unique observations related to the CHCCS implementation.

Also of note, because Washington County Schools did not schedule focus groups or support survey distribution in 2018-19, the findings in the qualitative data analysis section reflect perceptions from only five of the six participating LEAs for Year 2.

Analysis of Administrative Data

Our methods for completing our initial analyses of some of the administrative data collected for this evaluation are summarized at the beginning of the **Initial Quantitative Estimations of Pilot Program Impact** section, with additional technical information included in **Appendix E**.

[8] **Appendix C** includes a details description of the CHCCS initiative.

Analysis of Year 2 Qualitative Data

In this section, we use focus group and survey data collected during the 2018-19 school year to continue to address six of the evaluation questions (questions 1, 3, 4, 5, 6, and 7; Table 2, above). Since there is no common naming convention across the pilots for the various advanced roles, this report uses generic terms—"lead teachers" and "advanced roles teachers"—to signify any teacher in one of the many advanced roles. Teachers who directly work with those lead teachers are referred to as "teacher colleagues."

Do Advanced Teaching Roles Improve the Quality of Classroom Instruction?

In Year 1, focus group data suggested four ways in which the presence of the Advanced Teaching Roles pilots appeared to impact instruction:

- Enhancing the value of Professional Learning Communities/Communities of Practice;
- Increasing school-wide diffusion of best practices;
- Providing opportunities for more direct coaching; and
- Increasing the number of students who receive direct instruction from advanced teachers.

During the second year of implementation, lead teachers and their teacher colleagues offered new insights about whether and, if so, how they believed that having lead teachers in their schools improved the quality of classroom instruction. In addition to comments that reflected the major themes discussed in last year's report, many teachers also cited more nuanced ways in which teaching practices had improved. For example, teacher colleagues reported that they now are more likely to use data to inform instruction and to investigate problems of practice; in one school, this data analysis led to a greater awareness about how to match teachers to the students they can best serve:

> We were able to figure out what our strengths were as far as what type of student we're really good at teaching. I don't know if that was an intentional thing, but because our MRT [Master Reach Teacher][9] had "bubble" kids [students on the boundary between proficient and not proficient], and because the RT [Reach Teacher, or Reach Associate][10] had the lower kids, it allowed us to work [with students] at different ability levels and figure out what we're really good at, what type of student we're really good at reaching. For example, I found out that I'm really good at working with the higher students and pushing them whereas [a colleague] is better at working with the ELL students and helping support and bridge that gap for them. (Teacher Colleague)

[9] Master Reach teacher is one of the advanced teaching roles in Charlotte-Mecklenburg, Edgecombe, and Vance. For more information about specific advanced roles, please refer to **Appendix C**.

[10] Reach Associates are supporting-role staff members in the Opportunity Culture framework. The Reach Associate is not a lead role, but it does provide direct support to lead teachers, often giving them the flexibility to teach more students or work more intensely with small groups of students.

Teacher colleagues, as well as lead teachers, also shared a sense of growth in their instructional skills generally, their confidence in their ability, and a focus on their practice:

> [W]hat I'm focusing [on now is] how authentic my teaching is. (Teacher Colleague)

> In the beginning, I never thought I'd be able to teach literacy. I always thought I was strictly a math person. (Teacher Colleague)

> We grow, we're continuing to grow. Not only are we asking our teachers to grow and learn but we attend a lot of professional development. We do a lot of professional readings and resources. We research what's best and what's out there. [I] don't currently teach [full classes] now, [I] pull small groups, but if I were to go back into the classroom, my teaching would be totally different than when I left it just because we're learning more. It's that saying, "Do good until you know better, and when you know better you do better." (Advanced Roles Teacher)

In addition, more lead teachers found that, by observing their colleagues in the classroom, they had a new perspective on how to improve teaching in their schools to better serve students—an emerging theme in Year 1 that appears to have grown as the program matured. As a result of their growing awareness, many lead teachers not only took on a stronger role with respect to raising the level of teaching within a grade, but they also started to understand more clearly how content and instruction could be better aligned vertically across grades.

> When I was a classroom teacher, I only saw my classroom and the way I did things. And I just thought everyone did that the way that I did it. And [now,] seeing nine different classrooms, I saw a lot of things . . . *not* to do, and things *to* do. And [now I'm] able to share that with other classrooms, like, "This was really great, let's check that out." So, it's been really eye-opening for me. . . . I think also seeing the big picture more has let me understand how the things that I do in my classroom can impact the school as a whole. So, just for example, you would go to PD and hear things about vertical alignment, and everyone rolls their eyes, right? But then, once I . . . was responsible for all grade levels—like this year [I am] responsible for 3 through 5—there were things we strategically implemented in third grade and I was able to say, "I can see exactly how this is going to impact them in fourth grade, and if we do this, it will pay off." And teachers, hearing that and seeing that, are like, "Okay, then I'm on board and I'll do it." (Advanced Roles Teacher)

> As a classroom teacher, I thought everyone did what I did. So, it removed the blinders because I was no longer inside my four walls. And it's eye-opening because I really thought everybody taught 110% all day long, and that is not [always] the case. (Advanced Roles Teacher)

> The other thing I feel like I've grown into is my vertical alignment. I'm not just looking at my own grade level. I'm very aware of what [students] had to have

> before me and where they're going to go. And I know when I was in my own classroom before I was very much about "I can't worry about even what you had or where you're going, I've got to do it all this one year." So that awareness, and sharing it with the students and making sure that they're aware of the journey and the path they're on, is very different. (Advanced Roles Teacher)

As was the case in Year 1, along with the positive reports about how teaching has evolved in the pilot schools, some teachers remained cautious about the extent to which the program was having an impact on teaching—but in Year 2 those concerns were much less pronounced. On last year's survey, while 87% of lead teachers reported that classroom instruction had improved as a result of the initiative, only 64% of administrators and teacher colleagues agreed. This year, agreement grew for all three groups, with near-unanimous agreement among lead teachers (97%) and at least four out of five administrators (83%) and teacher colleagues (80%) also agreeing. Some of the remaining caution may be related to the newness of the initiative. One lead teacher, noting that student growth has been good, but not yet at the desired level, said, "There's just not enough data at this point to really make an informed decision about whether it was effective or not." In addition, it is not yet clear whether the key recipients of any improvements in teaching—students—detect a change, with nearly the same proportion in Year 1 and Year 2 agreeing or strongly agreeing that they learned more from their teachers than they did in the previous year (63% and 64%, respectively). We further explore the challenge of detecting change in instructional quality in the **Initial Quantitative Estimations of Pilot Program Impacts** section, below.

Do Advanced Teaching Roles and/or Related Local-Level Salary Supplements Increase the Attractiveness of the Teaching Profession?

Year 1 focus group data suggested that the pilots appeared to contribute to the attractiveness of the profession in three ways:

- The opportunity they provide classroom teachers to be in an official leadership role;
- The addition of an advancement pathway that does not require leaving the classroom and entering administration; and
- Financial recognition of the less directly observable leadership work many of the advanced roles teachers already are doing.

In the second year, many teachers once again cited two main elements—the advanced role and the salary supplement—as compelling reasons to participate in the program. On this year's survey, 78% of lead teachers either agreed or strongly agreed that they are more likely to recommend teaching as a profession as a result of their experience in their advanced teaching role, and 86% either agreed or strongly agreed that working in an advanced teaching position with supplemental pay has increased the likelihood that they would remain teaching in the classroom.

The opportunity to earn more in a teaching role also continued to be a prominent theme in Year 2 focus groups. One lead teacher noted that she no longer has to tutor on the side. Others added:

> When I got my letter in the mail, it was like a lottery ticket. Like, "How would you like to earn more money?" And I'm like, "Okay!" (Advanced Roles Teacher)

> At my former school, we did not [have ATR], and I had teachers who were babysitting after school, and who are waitressing after school, and bartending after school, and so they're having three and four jobs to just make ends meet. Now, some of my teachers [still] will take summer jobs . . . but the ones who are in the program at least aren't having to. (Administrator)

Perhaps more notable, at least two assistant principals "dropped down" and returned to teaching because of the program's financial support, and at least one other teacher reconsidered administration as a potential pathway. Taking a lead teacher position gave the former administrators the opportunity to return to a classroom-based role, and with the salary supplement, they now earn more than they did as assistant principals. The teacher who reconsidered an administration pathway added:

> I was ready to go into administration [before this program became an option], and honestly, the money is the motivation. As an assistant principal I actually would have been making less or the same amount of money as a classroom teacher, so that extra money is just really life-changing for me. So if the position stayed [available], that would motivate me to stay in the classroom longer, but I do know I have other options. (Advanced Roles Teacher)

Though the supplement clearly mattered to some, many teachers continued to state that the supplemental pay was not their primary motivation for taking a lead teacher position, citing instead the importance of having an opportunity to be in a leadership role: "I'm hoping we can continue what I'm doing [impacting more students]. I'll be honest, I would 99 percent continue doing it, even without the compensation." Even as a secondary consideration, however, the supplement continued to be an appreciated aspect of the program: "We don't do it for the money, but everyone wants to feel like their efforts are recognized."

In Year 2, several administrators shared that the program made their school a more attractive place to work and helped them recruit and retain strong teachers—and not just lead teachers. One principal noted that her school now was more attractive to a range of potential teacher applicants, both those who wanted a lead role and those who were seeking support from a lead teacher. As another administrator explained, "Our kids deserve the best, and the best way to get the best and be able to keep the best is to incentivize the best."

Do the Pilot Programs Provide Recognition to High-Quality Classroom Teachers?

In the first year of the program, lead teachers, their colleagues, and administrators all indicated that the selection process for advanced teaching roles was rigorous, but some teachers questioned whether the process might be *too* rigorous, excluding applicants with strong leadership potential.

In the second year, participants appeared to be were more nuanced in their perceptions of whether the "right" candidates were being selected for advanced roles. For example, although lead teacher, teacher colleague, and administrator responses to Year 2 survey questions about the quality of the teachers chosen for lead roles were generally positive and were consistent with

responses from the previous year, in focus groups, teacher colleagues also shared some uncertainties about the selection of and expectations for lead teachers in their schools. One teacher colleague stated:

> I don't feel the people in the positions are the ones best suited for the positions necessarily, or that they're really fulfilling the roles that should be filled. . . . I don't see them doing what they are supposed to be doing and yet they are getting a lot of extra money on top of their salary.

This idea of *role integrity* also surfaced in focus groups with administrators. While teacher colleagues and administrators were supportive of lead teachers earning increased salaries if they did, indeed, take on additional responsibilities, some teacher colleagues and principals new to ATR schools who inherited existing ATR teachers were not always clear about why those lead teachers were selected, or even the extent to which they were taking on additional duties. Both groups suggested providing greater transparency with respect to how candidates are selected for advanced teaching roles and expectations for those roles, as well as opportunities for administrators new to a school to have more ownership over implementation as they transitioned into their new roles.

Focus groups also reiterated the concern that, as one advanced roles teacher put it, "a lot of superior teachers didn't make the cut." One concern among teachers and administrators alike was that their LEAs' current selection processes were unbalanced.[11] They perceived an overemphasis on North Carolina Education Value Added Assessment System (EVAAS) scores and an under-emphasis on "soft skill" characteristics like leadership and relationship-building.

> You can have good scores but that doesn't mean you can lead a team of teachers, because adult learners and students are different. And relationship matters. If you can't have that relationship with the teachers, you can have all the [high] EVAAS [ratings] in the world, but if you can't relate to the teachers, you're going to struggle. (Advanced Roles Teacher)

> I have grave concerns about the . . . process because it's very much based on one data point, EVAAS. EVAAS is certainly an important indicator of student achievement, teacher talent, and teacher abilities, but I worry [that, on the one hand,] we are sending a message to teachers and principals about looking at multiple data points to come to conclusions and plan for interventions, but [on the other hand,] we're not sending that message at the district level when we hire people based on one data point into a position that frankly is very important and there's a lot tied to it. (Administrator)

In short, some teachers and administrators suggested that the selection criteria might identify some of the best *teachers*, but not necessarily the best *leaders*. To improve the selection process, they suggested including more qualitative and in-context data, such as principal

[11] For more information about each LEA's recruitment and selection procedures, please refer to **Appendix C**. In addition, we start to differentiate key aspects of each LEA's selection process in the **Initial Quantitative Estimations of Pilot Program Impacts** section, below. Of particular note, contrary to some of the concerns expressed above, all pilot LEAs rely on data points other than EVAAS when making selections.

recommendations, anonymous surveys of peers, teacher observations in a classroom setting, and/or observations of teachers in situations in which they lead other adults. We explore some of the possible ramifications of this distinction in a later section.

Do the Pilot Programs Support Retention of High-Quality Classroom Teachers?

While the variety of pressures and reasons that motivate a teacher to leave education are difficult to overcome with a single initiative, in Year 1, lead teachers reported that the pilots may have increased their willingness to stay in the classroom, rather than transition to a different role, such as administration. Teacher colleagues were less certain of the pilots' ability to single-handedly improve retention. Year 2 focus groups with teachers and administrators provided additional evidence that, for many teachers, access to advanced teaching roles gave them more reasons to stay in the classroom.

As in Year 1, many lead teachers talked about how the pilot's leadership opportunity and/or the salary supplement kept them in the classroom. Several lead teachers once again shared that they had been considering either leaving the classroom to become administrators or leaving education altogether before the program was introduced. One teacher explained that the pilot program was "one of the reasons I stayed in education." Others talked about how the advanced teaching roles could keep classroom teachers from "burning out": "I can continue to say that I probably wouldn't be in education if they didn't have these types of roles." On this year's survey of lead teachers, 90% either strongly agreed or agreed that they felt valued in their advanced teaching role.[12]

Administrators and lead teachers alike reflected on how the program provided teachers an alternative to the common career advancement pathway of moving into administration. One administrator explained, "I worry about the attractiveness of the teaching profession in general. . . . I think there is value in programs like this. I think it does provide an alternative to this thought that you have to go into administration in order to make more money." Some lead teachers appreciated that they could advance as school leaders while remaining in the classroom:

> We don't want to leave teaching; we want to stay with the kids, and this was one of the few things [that addressed that desire]. . . . [W]hat you do is go into admin or go to the central office and that's not what we wanted to do. We wanted to stay working with kids. So this gave us the opportunity to advance our career but stay doing what we love doing with a little bit more admin tied to it. (Advanced Roles Teacher)

This year, some teacher colleagues also shared how the presence of the program influenced not only their decision to stay in their current positions but also their motivation. On this year's survey of teacher colleagues, 63% strongly agreed or agreed that the opportunity to collaborate with lead teachers at their school influenced their decision to continue teaching—a rate that may not be as enthusiastically positive as some of the others included in this report, but one that is notably high, given that the respondents were *not* receiving supplements. In focus groups, they

[12] It may be worth noting, however, that willingness to stay in the classroom does not necessarily translate to enjoyment of the work; less than two out of five students surveyed in Year 1 (39%) and Year 2 (36%) perceived that their teachers enjoyed their jobs more than they did the year before.

elaborated on the ways in which the team structure, coaching, and mentorship kept them in the classroom:

> I have thought about leaving the school, and the main reason why I haven't is because I have the people on my team that I do. (Teacher Colleague)

> I can't imagine having the passion for [teaching] that I have right now if I didn't have the support that I have right now. I think it's a huge part of why I would stay in [the profession] and do a much better job as opposed to just taking those last few years you're supposed to have and just cruising through. (Teacher Colleague)

Do the Pilot Programs Provide Assistance to and Support Retention of Beginning Classroom Teachers?

We noted in Year 1 that most pilots did not appear to be designed explicitly to provide support for beginning teachers, and lead teachers acknowledged that such support occurred as part of the regular cycle of support in their schools anyway, even without the pilots. Interestingly, while not a strategic focus for most of the pilots, it appeared that the program did in fact support beginning teachers. For instance, in Year 1's survey, 70% of lead teachers and 61% of teacher colleagues either agreed or strongly agreed with the statement, "I believe the program provides adequate support to beginning teachers."

Responses to the same question were stronger in Year 2, with about the same proportion of lead teachers (71%) but a higher proportion of teacher colleagues (78%) either agreeing or strongly agreeing that the program provided support to beginning teachers. Focus group data from Year 2 reinforced these results, suggesting several ways in which pilot programs positively impacted beginning teacher support and retention, including providing real-time support, strengthening preparation, and enhancing professional growth.

Teachers and administrators agreed that working with experienced, high-quality teachers allowed beginning teachers the opportunity to observe, practice with, and receive timely feedback on effective instructional strategies from lead teachers. Beginning teachers perceived this level of real-time, in-the-field support to be necessary because, as one beginning teacher said, "[N]o matter how great a college program you go to, it doesn't prepare you for what happens once you get in the field." Other beginning teachers provided more specific examples:

> As a second-year teacher, I'm still trying to figure out, is this a career path that is good for me? Is this something I enjoy doing and want to continue doing? And I would say that from last year to this year [having access to an Advanced Roles Teacher] has definitely made me feel more comfortable in the classroom and more willing to continue the profession.

> When co-teaching with my lead teacher I got to see what works for her and then try it out myself to see if it works for me. I got to see someone modeling management or another strategy during literacy and that was really great because I learn a lot [more] through watching someone do something than someone telling me how to do something.

> I'm Teach for America, I didn't study education, I studied economics and political science. I didn't have any experience with children or pedagogy or structure. With my TFA training, I didn't get anything that comprehensive; I completed the [Teach for America] Summer Institute but I felt unprepared. What I did over the summer and what I'm doing now with my lead teacher, it's night and day.

Lead teachers concurred and shed more light on the need for this level of support:

> I don't know how a first-year teacher nowadays, with all the expectations, can do this without a coach. The expectations. The rigor. The in-depth of what they have to know for a subject and getting to know their students, and knowing how to read the data and being thrown into the fire. Whether it's a lateral move or student teaching, I don't think anything prepares you for being on your own.

Not only do beginning teachers who work with Advanced Teaching Roles teachers appear to feel better prepared, they also believe they are learning and growing at a quicker rate than they would have on their own. As one beginning teacher noted, "I believe the learning curve is being cut a little bit each and every day because I have the support of someone who's been in the classroom for 20 years." Lead teachers and administrators also noted greater growth in the beginning teachers who worked with lead teachers:

> He's going to grow probably two or three years in one year. He's going to get support that you normally do not get as a first-year teacher. He's going to understand why we use the data to drive the instruction; he's going to understand a lot more about the lesson planning and student engagement because he's getting coached around this stuff weekly, he's planning with me weekly, he's getting a lot in one year that's going to grow him two or three times higher than a first year teacher without that support. (Advanced Roles Teacher)

> I've told my new teachers, "You're further along"—and I'm year 15 as a principal—"You're further along than any group of new teachers that I've ever had, simply because you've got these people with you on a daily basis coaching you." Whereas, [if] I'm just being honest, not having this help, I may see them once a week in my old principalships, if that. . . . (Administrator)

Administrators acknowledged that, while advanced teaching roles cannot fully replace existing support for beginning teachers, they can make the support provided to beginning teachers stronger. Representatives from most of the pilot LEAs contended that the level of intensity of support for beginning teachers is much higher for those supported by lead teachers, relative to the more random support provided via traditional mentorships.

These differences in beginning teacher support may come at a financial cost, however, depending on the number of beginning teachers with whom a lead teacher is able to work, and at what level of intensity. For example, for about $2,000 per beginning teacher, programs like the New Teacher Support Program can provide more intensive support than traditional mentorship, and at a price point that may be more affordable than the cost of a lead teacher—who in some cases may only support one beginning teacher— in some of the ATR pilot programs. Of course,

as demonstrated by evidence presented in other sections of this report, Advanced Roles teachers also often provide benefits that are not a part of other beginning teacher support programs, so the final assessment of relative value likely will be more than a simple financial calculation for most LEAs. We plan to explore questions like these in greater detail in the final report as part of our efforts to address the evaluation question about returns on investment (**Appendix A**).

In What Other Ways Do These Pilot Programs Impact High-Quality Experienced Classroom Teachers?

In Year 1, the evaluation team summarized several potential impact areas outside of those targeted by the original legislation, including: lead teacher satisfaction with professional development, resources, and support; increased lead teacher awareness of variability in instructional quality across their schools;[13] and increased leadership confidence among teachers and administrators. Focus groups in Year 1 also shared that some pilots had trouble fully staffing all of their new positions before starting up, and that they experienced some variability in the quality of those who took on some of the available roles. In Year 2, the evaluation team continued to track these areas and also made note of any new developments, both positive and negative. In general, the strongest recurring themes across the two years appear to be in the areas of leadership confidence and sense of community.

Impacts on Leadership Confidence

Several of the sections above include examples of ways in which lead teachers began to assert themselves more directly as leaders in their schools in Year 2. In addition to these specific instances, there also appeared to be a general growing feeling of empowerment and confidence to lead:

> I feel like I have more of a voice now than I did just as a regular teacher. I feel like I actually have a mindset that I can make a difference, like make a change, not just in my classroom, but grade level-wise, and eventually, hopefully [at the] school level. (Advanced Roles Teacher)

Several administrators concurred, with one even expressing how this emerging leadership has helped to support her own leadership responsibilities: "I don't know if I'd want to be a principal that *didn't* have this support."

Impacts on Sense of Community

As we have noted elsewhere, the original Theory of Action developed at the start of this evaluation (**Appendix F**) posited that, in order to have longer-term effects on student outcomes, the Advanced Teaching Roles pilots first would have to contribute to stabilization and improvement of overall school culture. The evaluation team hopes to include analysis of Teacher Working Conditions trend data in the final report to determine whether any changes in culture can be detected on relevant survey items, but ahead of those analyses (which we hope will be

[13] Since this topic emerged in Year 2 as a stronger theme that was more directly connected to instructional support, we have moved discussion of related Year 2 data to the section above on improvements in the quality of instruction.

able to include survey results from 2020), some related qualitative data—both positive and negative—are emerging.

On the positive side, and as explored in many of the earlier sections, some teachers and administrators believe the overall culture in their schools is changing, and in good ways. One administrator reflected on how the community of teachers in her school has improved because her "teachers don't feel like they are alone," and that this level of comradery is encouraging her teachers to be more innovative in their approaches to instruction:

> I think they've [teachers] tried things that they would not have tried without support, especially because they're trying more things with technology. . . . And you know, usually you don't want to try [something new] because you're scared you're going to mess up and fail, but with that [lead teacher] in there, the perspective is, "Look, we'll try this together." (Administrator)

Alongside evidence of community-building, however, also are some indications of areas in which pilot program administrators may need to provide more oversight and support in order to ensure that the presence of lead teacher roles helps to build rather than weaken school-level community. We share three representative scenarios here.

Conflicting Attitudes about Differentiated Pay. While we have noted in previous reports that even the teachers not in lead roles have been supportive of the additional pay provided for lead teachers, at least a few teacher colleagues continued to express some concerns about the differences in pay, especially when they believed that they were taking on an equal share of the work.

> You don't hear it [negativity about the initiative], but you feel it. You have the teachers that receive bonuses . . . [but] everybody on a team might have worked with your kids. Because when we intervene [with] kids here, we mix up groups so [that in the end] everybody supported your kid, but you get a bonus, and so I think financial resentment is just a part of education because everybody's running so low on money. So everybody resents anybody who's making any additional money. . . . (Advanced Roles Teacher)

Disconnects between Selection Criteria and Leadership Expectations. The demands of the various lead teacher roles may not always match up with the skills of the people placed in those roles, which on occasion can lead to conflict. For instance, in one school, a group of veteran teachers acknowledged that they had resisted a lead teacher's efforts to change their approaches to instruction. The lead teacher believed that the resistance reflected an unfounded reluctance to change despite evidence indicating that a change was in order. The administrator's perspective was that each party was responsible in part for the conflict; while the lead teacher's assessment of the need for changes in instruction was accurate, she did not have the leadership skills necessary to share that assessment in a constructive way with her veteran colleagues. This scenario illustrates one of the possible negative outcomes of a concern discussed earlier about the lead teacher selection process and its perceived tendency to focus on academic outcomes over evidence of leadership strengths.

Differences in Perceptions of the Purpose of the Program. Some teacher colleagues said that they lacked clarity regarding their LEA's reasons for the pilot (e.g., the targets they hoped to meet) and as a result sometimes struggled to understand how the lead teacher roles were supposed to address the on-the-ground realities in their schools, of which they were much more intimately aware.

All three of these scenarios help to illustrate some of the ways in which *implementation* of an Advanced Teaching Roles initiative is just as important as the philosophy behind the initiative. Without constant monitoring of and reflection on how the initiative is being received by all staff, there can be an inadvertent negative impact on the underlying school culture that appears to be so vital to achieving the longer-term goals of improved student achievement.

Initial Quantitative Estimations of Pilot Program Impacts

During the first pilot year, ahead of the availability of quantitative data, evidence of the impact of the pilots on teacher effectiveness and student growth primarily was anecdotal, but promising. As we noted in our previous report, one lead teacher exclaimed, "We made tremendous growth this year; we had not met our proficiency that we hoped to meet, but as far as growth measurements and our . . . tested subjects, it was remarkable how much growth the students made, and it made it possible to know that the effort that [we]'re putting forth was making [a difference]." When asked if she believed that this growth could be attributed to the new roles available via the pilot, she responded, "Absolutely!"

For this year's report, with student outcome data now available from the 2017-18 school year, the evaluation team was able to introduce a quantitative lens alongside the ongoing qualitative work to help determine if, indeed, the presence of advanced teaching roles has had a measurable impact on teacher effectiveness and student performance outcomes. ***Please note: All quantitative outcomes included in this report should be considered preliminary only***—in most cases, they are single-year, school-level estimates only, not student- and teacher-level trend data across years (see **Appendix E**).

Quantitatively Addressing Similarities and Differences across LEA Implementations

As we have cautioned in previous reports, there are significant challenges associated with attempting to quantify the impact of the advanced teaching roles initiative (**Appendix E**). Without a truly experimental design (one in which participating LEAs, schools, and even teachers and students are randomly selected to participate), at least some of any impact detected might be attributable to overall school changes and not just to the presence of an advanced roles program. In addition, differences in implementation fidelity across and within LEAs also can impact estimates (Backes and Hansen 2018). Finally, bear in mind that we are looking not at implementations of the same program in different settings but instead at implementations of *different* (though sometimes related) programs in different settings—with some differences even evident across schools within LEAs.

That said, while there are several structural and implementation differences across the pilots—to be expected, given the experimental nature of pilots in general—Table C1 (**Appendix C**) also identifies important similarities across several programs. We have used these similarities to aid in our team's efforts to conduct what we believe are useful, if limited, initial estimations of some of the quantifiable impacts of the pilot programs. In particular, we believe the similarities across four implementations is pronounced enough to warrant analyses not just of the combined data across all six LEAs but also of the four LEAs with the greatest implementation similarities (Charlotte-Mecklenburg, Edgecombe, Pitt, and Vance) Hence, school-level results included in this section are reported for data from all six LEAs and for data from the four similar LEAs.

Quantitative Analysis Methods

For the final report period, the evaluation team's primary approach to estimating changes in most of the short- and mid-term school-level outcomes of interest will be via Interrupted Time Series modeling, which focuses on changes in the *rate* of growth (or decline) across time.

Because at the time of the development of the current report we had only one year of outcome data available (outcomes from 2017-18) for most of the pilot schools,[14] any statistical analyses conducted for this year's report are one-year-change, Difference-in-Differences analyses. All other analyses are observational only and do not involve statistical estimations.

Overall, the strength and precision of matches between the ATR schools and the comparison schools were good, but the quality of the matches varied by start year and by LEA. To compensate, in addition to conducting some of the student outcomes analyses for all LEAs combined and for the four similar LEAs, we also completed student outcomes analyses for all ATR schools, regardless of the strength each comparison school match, and for only those ATR schools for which matches were strongest. More information about our short-term outcomes analysis and matching approaches are included in a Technical Appendix (**Appendix E**).

Do Advanced Teaching Roles Increase School-wide Student Growth?

For this first report, we were able to examine two school-level student performance variables. The first is the overall **School Performance Grade** score, which is the value used to generate the annual School Report Card grades. It is based on a weighted average of school-level achievement (80%) and school-level growth (20%). The second is the achievement portion only—the **School Performance Composite** score—which is the proportion of all End-of-Grade or End-of-Course English/Language Arts, mathematics, and science tests taken at a given school on which students demonstrated grade-level proficiency or better.

School Performance Grade. When considering raw results alone for all six LEAs, students in the ATR schools do appear to have been more likely to exhibit positive changes in performance after the first year of implementation than were their counterparts in matched schools. Two-thirds (67%; *n*=40) of all ATR schools showed increases, with only one-fifth (20%; *n*=12) declining. Among all matched comparison schools, less than one-half (47%; *n*=18) showed increases, and more than two-fifths (42%, *n*=16) declined. Of the five schools whose Performance Grade scores improved 10 or more points, four were ATR schools (greatest gain=17 points); of the five schools whose grade scores declined by seven or more points, three were comparison schools (farthest drop=15 points). Gains were more pronounced for schools in the four LEAs with similar programs. Almost three-fourths of that sub-set of ATR schools (74%; *n*=28) showed increases, and less than one in five (18%; *n*=7) declined.

In all cases, however, whether measuring differences in performance across all school levels or within levels, across all participating LEAs or within the four similar LEAs only, or across all ATR and comparison schools or only those ATR schools for which the strongest matches could be made, changes in year-to-year performance may have been larger for ATR schools, but not to a statistically significant degree (Table 4, following page).

[14] Because CHCCS began implementation a year ahead of legislative support (2016-17), two-years-out data were available as well as one-year-out data. Acknowledging the programmatic differences noted in the **Data and Methods** section, and in keeping with the availability of only one-year-out data for the other five LEAs, CHCCS data from 2016-17 are included in the one-year-out group analyses, and CHCCS data from 2017-18 will be incorporated in the two-years-out analyses conducted for the final report.

Table 4. Change in School Performance Grade Score, 1 Year Out

			coef.	std. err.	*t*	*p*-value
Relaxed Matches	***All Schools***	Elementary Only	***2.074851***	3.25054	0.64	0.524
		Elem + Middle	***2.529443***	3.144227	0.8	0.422
		HS Only	***2.937192***	7.12094	0.41	0.681
	w/o CHCSS, WCS	Elementary Only	***3.936715***	3.702568	1.06	0.288
		Elem + Middle	***5.100269***	3.595021	1.42	0.157
		HS Only	***3.508621***	7.983967	0.44	0.662
Restricted Matches	***All Schools***	Elementary Only	***0.932683***	3.579945	0.26	0.795
		Elem + Middle	***0.768217***	3.34398	0.23	0.818
		HS Only	***2.105263***	7.624708	0.28	0.783
	w/o CHCCS, WCS	Elementary Only	***2.716905***	4.077957	0.67	0.506
		Elem + Middle	***3.088889***	3.785303	0.82	0.415
		HS Only	***2.676692***	8.197238	0.33	0.745

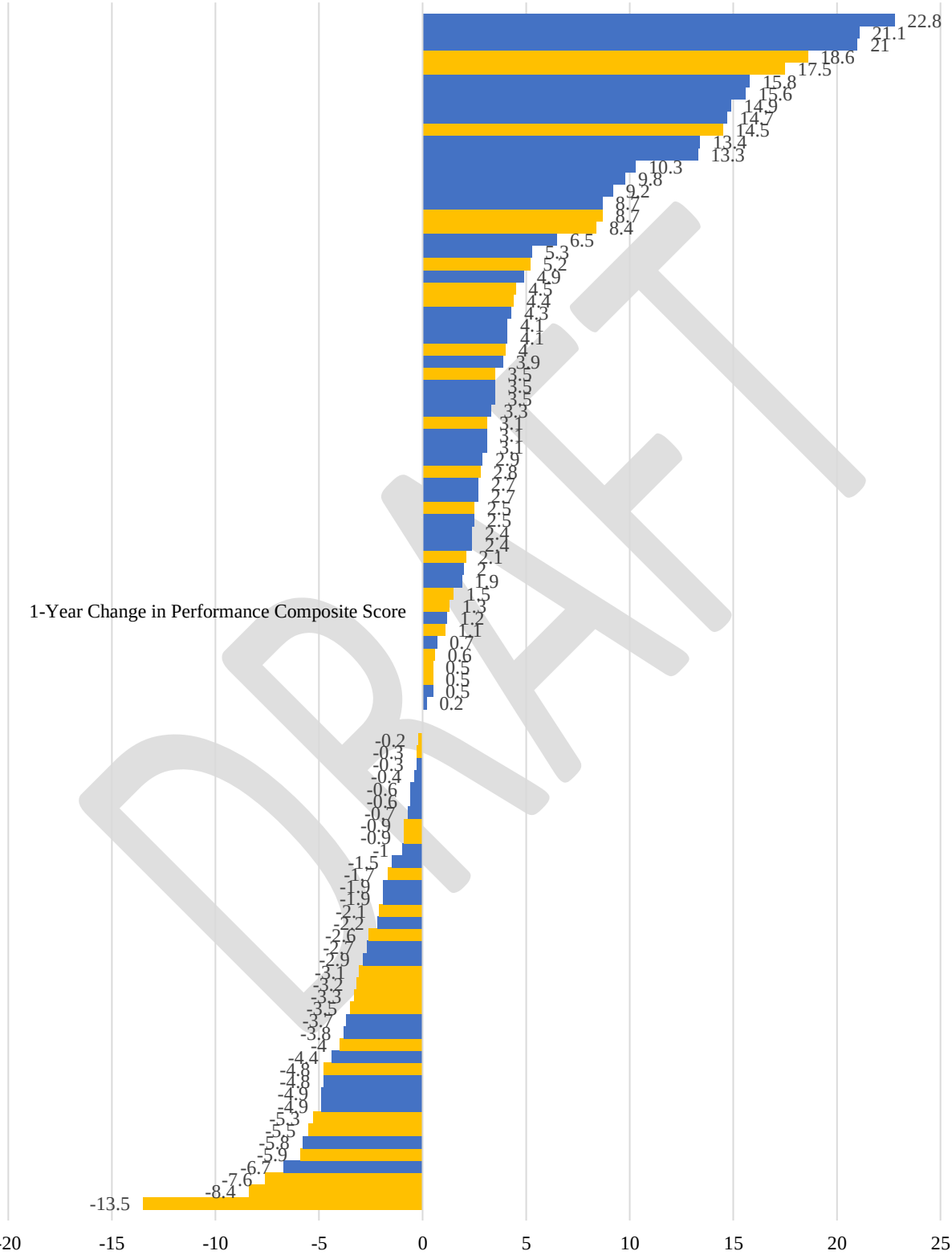
School Performance Composite. We were not able to statistically analyze changes in the Performance Composite component of the overall Performance Grade score in time for this report, but we can share graphically the raw differences in Performance Composite scores between the ATR and matched schools.

As demonstrated in Figures 1 and 2 (following pages), whether looking at one-year-out results for all ATR schools or only for ATR schools in the LEAs with similar programs, on the whole, ATR schools (blue bars) were more likely to see one-year positive gains in Performance Composite scores than were their matched comparisons (yellow bars). Special thanks to Gary Henry, James Guthrie, and LaTricia Townsend for the inspiration they provided for the visualizations below.[15]

Readers should note, first, that, on both measures (Performance Grade and Performance Composite), being an ATR school did not always equate with a score increase, and, second, that these one-year differences may not persist over time as data from multiple years become available.

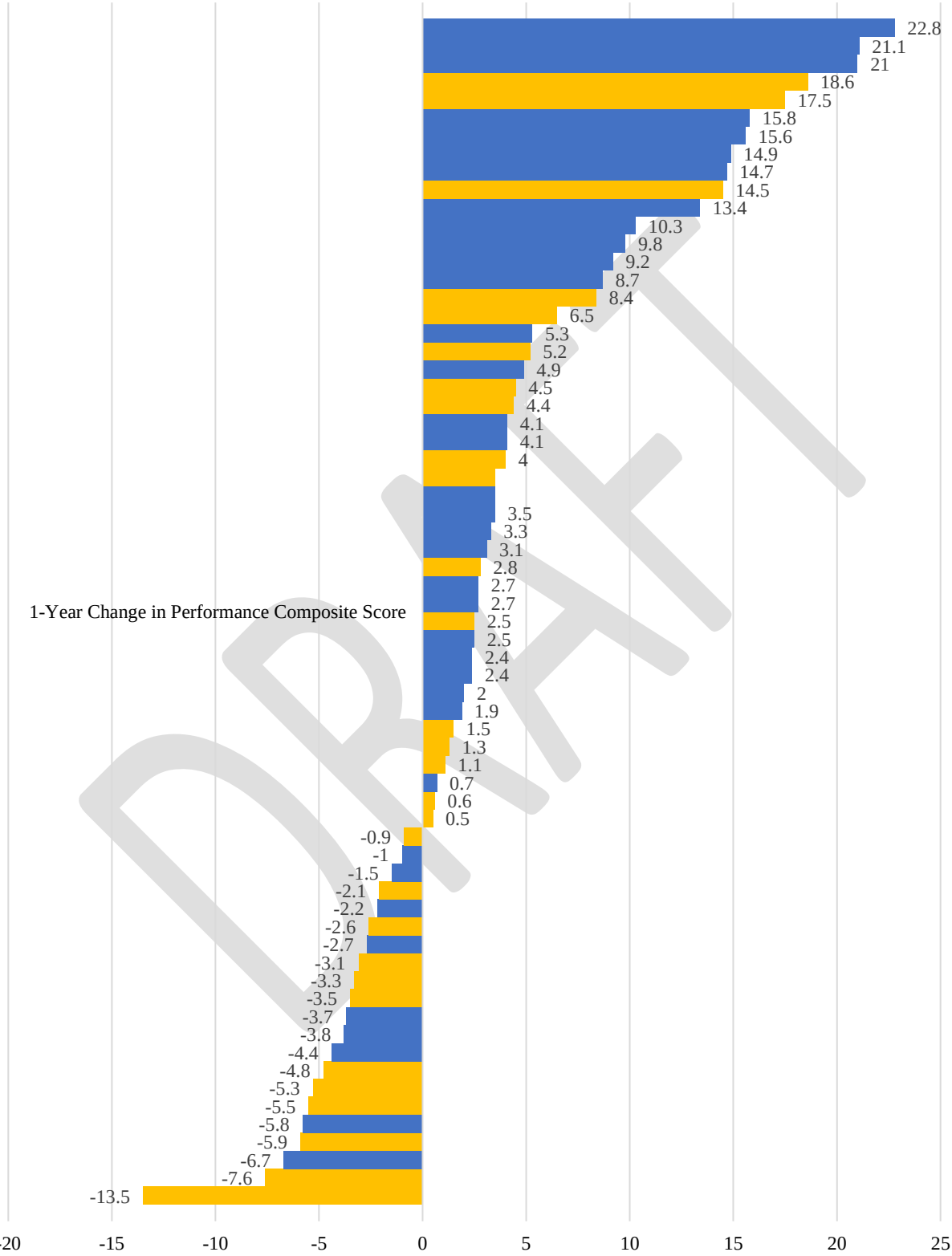
[15] Henry, G. T., Guthrie, J. E., and Townsend, L. W. (2015). *Outcomes and Impacts of North Carolina's Initiative to Turn Around the Lowest-Achieving Schools.* Chapel Hill, Greensboro, and Raleigh, NC: Consortium for Educational Research and Evaluation–North Carolina. https://cerenc.org/wp-content/uploads/2015/09/0-FINAL-Final-DST-Report-9-3-15.pdf

Figure 1. 1-Year Change in Performance Composite Score (All ATR Schools)



Blue=ATR Schools; Yellow=Comparison Schools

Figure 2. 1-Year Change in Performance Composite Score (Excluding CHCCS and WCS)



Blue=ATR Schools; Yellow=Comparison Schools

Do Advanced Teaching Roles Improve the Quality of Classroom Instruction?

As indicated in the Theory of Change model (**Appendix F**), the evaluation team has theorized from the start of the initiative that, before we might see any strong evidence of changes in student academic achievement, we first would expect to see changes in some of the outcomes that eventually could contribute to student academic success, such as improvement in teacher quality. We noted above in the **Analysis of Year 2 Qualitative Data** section that, while most teachers believed that the presence of ATR was leading to improvements in classroom instruction, the *degree of certainty* of that perception was not the same for lead teachers and teacher colleagues. One way to begin to tease out possible impacts of ATR on teacher quality is to look at the other component of the overall School Performance Grade—the **School Accountability Growth** score, which estimates the degree to which educators helped students meet or exceed their anticipated achievement levels, as predicted by achievement from prior years.

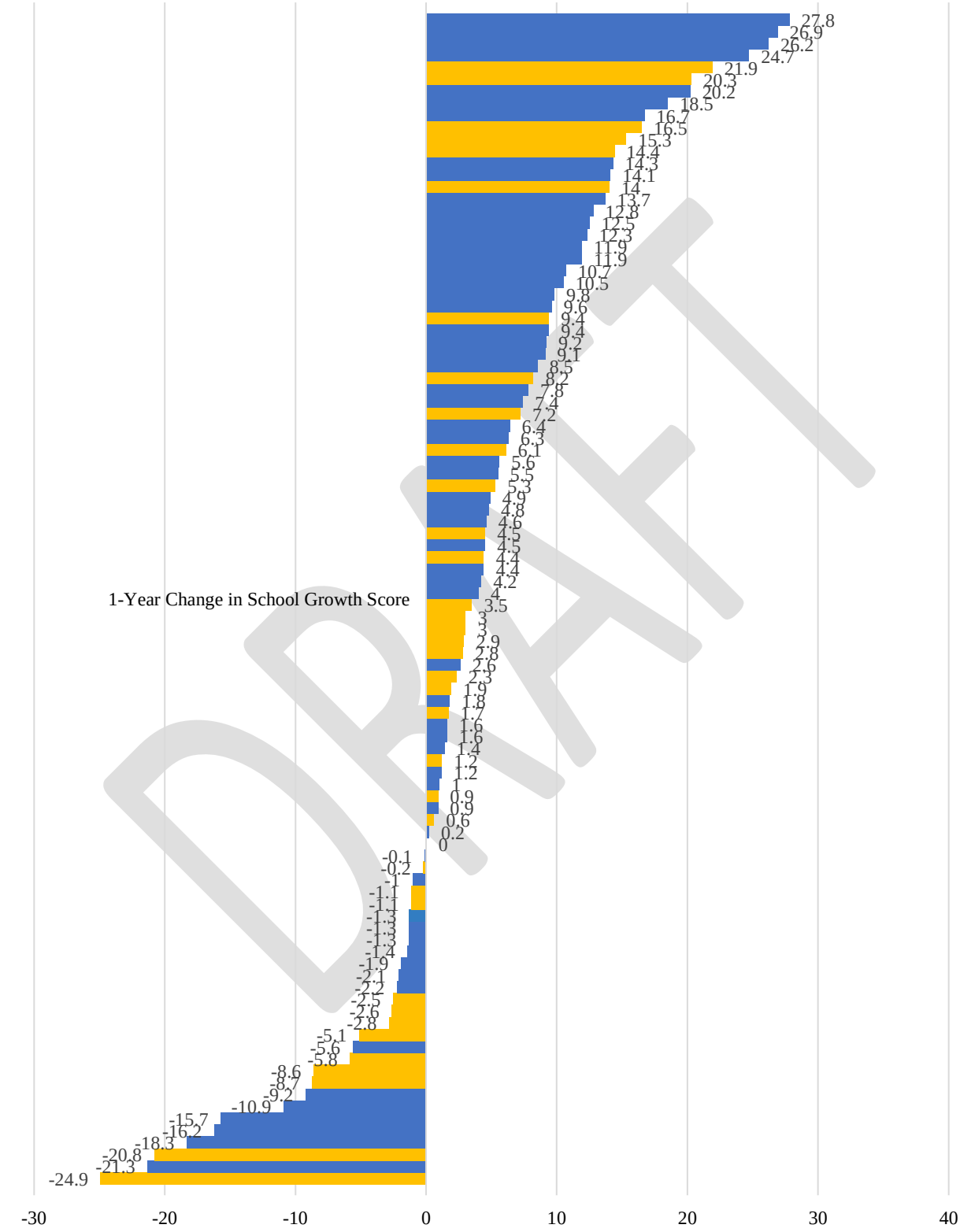
Similar to changes in the overall School Performance Grade and the School Performance Composite, ATR schools appeared to outpace their matched comparison schools in one-year changes in school growth. Whether they were ATR or matched comparison schools, most schools in our sample demonstrated positive changes in School Growth, but, as before, positive changes were more common among ATR schools (Figures 3 and 4, following pages).

For this measure, however, the differences in the positive changes also were statistically significant in three scenarios (Table 5). For elementary ATR schools, results were statistically significantly positive; results also were statistically significantly positive for elementary and middle schools combined in the four LEAs with similar programs. Of note, however, those positive results no longer were statistically significant when the analyzed pool of schools was limited to only those for which the strongest comparison school matches could be found. The evaluation team will continue to track this outcome measure for Year 2 to determine whether these early signs are evidence of an emerging positive trend.

Table 5. Change in School Accountability Growth Score, 1 Year Out

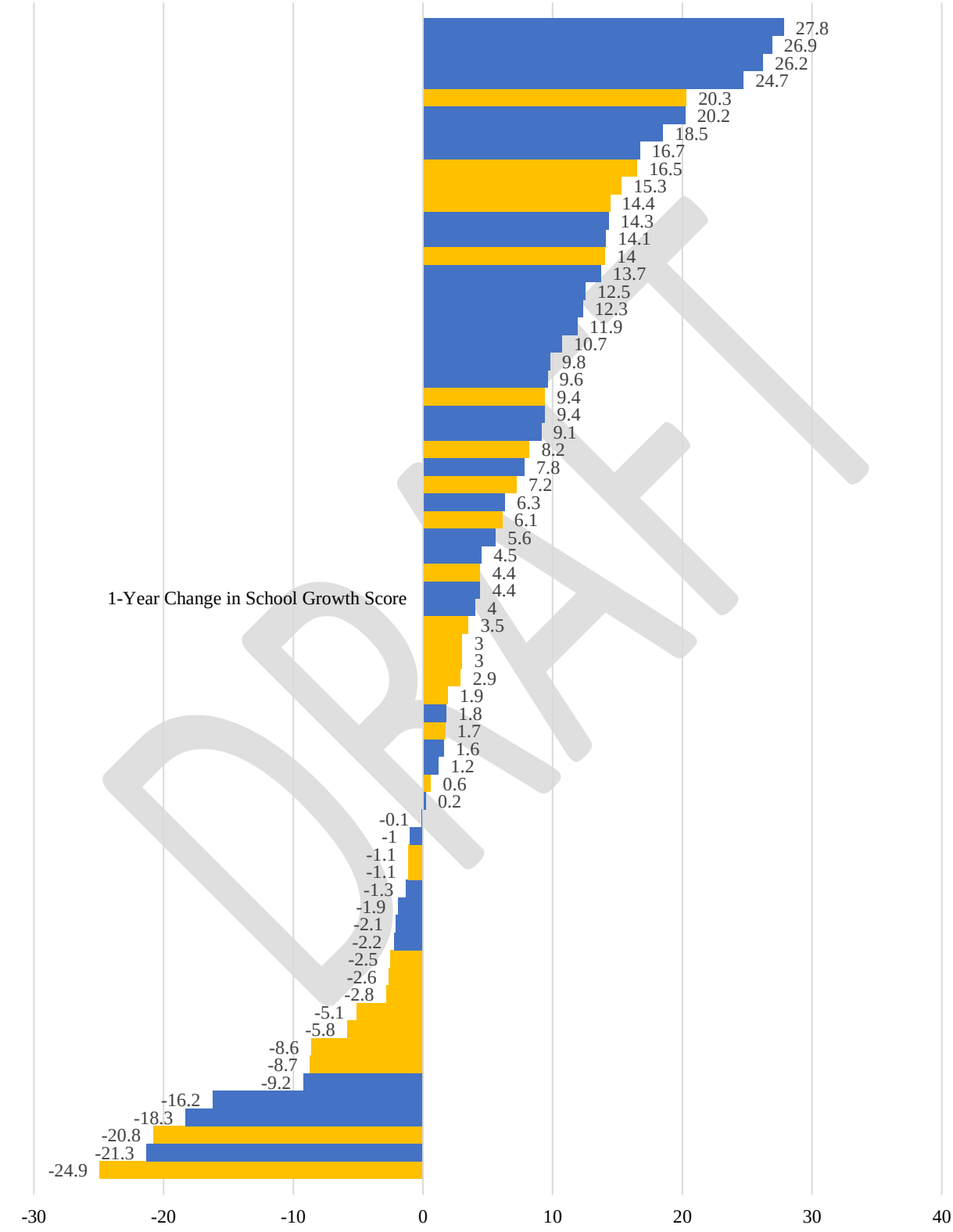
			coef.	std. err.	*t*	*p*-value
Relaxed Matches	***All Schools***	***Elementary Only***	***5.344350***	***2.458429***	***2.17***	***0.03***
		Elem + Middle	***4.383951***	2.259556	1.94	0.053
		HS Only	***5.943353***	7.445888	0.8	0.427
	w/o CHCSS, WCS	***Elementary Only***	***7.012376***	***2.939722***	***2.39***	***0.018***
		Elem + Middle	***6.157028***	***2.724293***	***2.26***	***0.024***
		HS Only	***4.699197***	8.993948	0.52	0.603
Restricted Matches	***All Schools***	Elementary Only	***4.011846***	2.515518	1.59	0.112
		Elem + Middle	***3.340249***	2.289725	1.46	0.145
		HS Only	***6.501382***	8.037594	0.81	0.422
	w/o CHCCS, WCS	Elementary Only	***5.364867***	3.009493	1.78	0.076
		Elem + Middle	***4.836108***	2.753407	1.76	0.08
		HS Only	***5.257226***	9.602649	0.55	0.587

Figure 3. 1-Year Change in School Growth Score (All Schools)



Blue=ATR Schools; Yellow=Comparison Schools

Figure 4. 1-Year Change in School Growth Score (Excluding CHCCS and WCS)



Blue=ATR Schools; Yellow=Comparison Schools

One additional classroom instruction measure we hope to be able to include in greater detail in future reports is changes in quality (as measured by the state's Education Value-Added Assessment System [EVAAS]) over time for only those teachers most directly impacted by ATR: lead teachers and the directly-impacted teachers with whom they work most closely (the teachers we refer to as "teacher colleagues" in the qualitative analysis section, above).

For this first quantitative analysis period, with the assistance of NCDPI, we were able to examine preliminary EVAAS data for ATR lead teachers from four of the six LEAs; however, with data missing from two LEAs and no data from the matched comparison schools (which would allow us to compare changes), we have deferred completion of these analyses until more data can be gathered for the final report. Where appropriate, we have included some of these raw data below.

Do Advanced Teaching Roles Increase Attractiveness of the Teaching Profession?

There are at least four ways to approach this question quantitatively (changes in the number of applicants for lead teacher roles, changes in lead teacher position vacancy rates, changes in lead teacher retention, and perceptions among licensure candidates of the attractiveness of the programs) but for three of those measures, either the programs have not yet matured enough to estimate changes or trends, or we did not yet have access to trend data from all six LEAs. We will assess the fourth measure—perceptions of licensure candidates—via survey in Spring 2020.

Do the Pilot Programs Provide Recognition to High-Quality Classroom Teachers?

One quantitative approach to measuring the degree to which the pilot programs recognize high-quality teachers is to compare characteristics of unsuccessful applicants with those of successful applicants. In other words, are the programs selecting teachers for leadership roles who have stronger indicators of their teaching ability? Each pilot LEA uses a different set of criteria for selecting its lead teachers (Table 6), but two measures available for most applicants across all LEAs that we believe are worth tracking as we attempt to address this question are 1) ratings on Standard 1 of the North Carolina Educator Effectiveness tool (Leadership), and 2) quantitative measures of educator effectiveness as estimated by EVAAS (Table 7, following page).

Table 6. Selected Criteria for ATR Lead Teacher Roles in Each Pilot LEA

			Quality Measures				
LEA	*Experience*	*Effectiveness*	*Education*	*Licensure*	*Training*	*Leadership*	*Other*
CHCCS					High-level training	Coach/mentor/ PLC lead exp.	
CMS	Years of Experience		Grad. Degree	NBCT			
ECPS	Years of Experience	EVAAS					
PCS		EVAAS	Masters+	NBCT	TLI		
VCS						Leadership essay	Behavior Event interview; Performance Task
WCS	Years of Experience						LEA rubric score

Table 7. Changes in NCEES Standard 1 and EVAAS Ratings, ATR Applicant Pools, 2016-17 to 2017-18

	Unsuccessful Applicants		***Successful Applicants***	
2016-17	10.2%	Distinguished	20.7%	Distinguished
	50.8%	Accomplished	51.1%	Accomplished
	20.3%	Proficient	7.4%	Proficient
	-0.04	Avg EVAAS	2.41	Avg EVAAS
	n=59		*n*=135	
2017-18	18.5%	Distinguished	18.1%	Distinguished
	56.9%	Accomplished	57.8%	Accomplished
	15.4%	Proficient	10.8%	Proficient
	1.30	Avg EVAAS	2.23	Avg EVAAS
	n=65		*n*=232	

LEAs: CMS, VCS, ECPS; WCS (1617 data only)
PCS = No applicant status data; CHCCS = No data

While successful ATR leadership applicants appeared to be similar to unsuccessful applicants in terms of the Leadership ratings they receive from their administrators in the year of their application, on average, successful applicants for both years did have notably higher EVAAS scores. Finally, though too early to refer to it as a trend, the applicant pool appears to have strengthened between 2016-17 and 2017-18, with unsuccessful applicants in 2017-18 earning higher EVAAS scores than their counterparts in 2016-17.

Do the Pilot Programs Support Retention of High-Quality Classroom Teachers?

We will be able to provide initial quantitative trend estimates for this question once all data for the 2018-19 school year are available for analysis from all six pilot LEAs.

Do the Pilot Programs Provide Assistance to and Support Retention of Beginning Classroom Teachers?

The bulk of the information we collected with respect to lead teacher support for beginning teachers was qualitative (and is summarized in the **Analysis of Year 2 Qualitative Data** section, above). Even so, at least one quantitative data point—evaluation ratings for lead teachers on Standard 1 of the North Carolina Educator Effectiveness System—may provide some quantitative estimation (if indirect) of changes in the degree to which the administrators who supervise lead teachers perceive their leadership ability.

Not surprisingly, and as noted above, ATR lead teachers rated highly on Standard 1 in the year before their assumption of a new leadership role, with three-fourths of those who accepted leadership roles and for whom data were available rated either Distinguished or Accomplished in

2016-17. For the 2017-18 school year—their first year in ATR leadership roles—the proportion rose to over 84% (Table 8).

Table 8. Change in Lead Teacher NCEES Standard 1 (Leadership) Rating, 2016-17 to 2017-18

Standard 1 Rating	***2016-17***	***2017-18***
Distinguished	34.2%	30.3%
Accomplished	40.8%	53.9%
Proficient	11.8%	2.6%
(Unrated)	13.2%	13.2%

n=76 (incl. teachers with no rating in one or both years)
LEAs: ECPS, PCS, VCS, WCS; CHCCCS = No data;
CMS = No role data

Data from only four of the six participating LEAs were available at the time of our analyses, and only 66 lead teachers in those LEAs received a rating on Standard 1 in both the year before they assumed a leadership role and their first year in that role, so we caution against drawing firm conclusions from the data presented here. We believe, however, that there is value in continuing to track these data over time—especially for lead teachers as they first transition into their new leadership roles—to determine whether the trend persists as the programs mature and as data for more lead teachers become available.

Another potentially good quantitative measure for future investigation may be beginning teacher turnover rates in ATR schools and in the matched comparison schools. At the time this report was being developed, disaggregations of school turnover rate data were not reported for teachers with different years of experience.

Limitations to and Considerations for Quantitative Outcome Estimations

As indicated in previous reports, there are at least four factors (some of which already have been touched on above and are repeated here for emphasis) that have the potential to limit the robustness of our quantitative findings: 1) The small number of teachers and students directly impacted, relative to the number of teachers and students included in the analyses; 2) important structural differences across the six pilots; 3) the lack of randomization in teacher and student participation; and 4) the pilot (and evaluation) timeline.

1. *Size of Impacted Teacher and Student Populations*

   The approaches used to arrive at most of the results reported above estimate *school-level* changes in student outcomes, teacher behavior (e.g., attrition rates), and teacher quality (e.g., via formal teacher evaluations), but, because many participating schools host only a small number of directly impacted teachers, school-level results may mask effects (both positive and negative) on those specific teachers and their students. The analyses we conduct "estimate[] the difference in school performance under treatment and comparison conditions . . . over time," but they do not "provide an estimate of what would have happened to individual students [or teachers] or groups of students [or teachers] under the two treatment conditions" (Hallberg 2018, p. 297). In other words, because school populations change over

time (students and teachers move away, students and teachers join a school), our analyses estimate "the effect of the combination of two forces: the change in the composition of students [and teachers] in the school [over time] as well as the change in the [aggregated] performance of the students [and teachers] in the school [over time]" (Hallberg 2018, p. 297). To compensate, when the data allow and when we are able to gather enough information from participating LEAs, we will calculate some of the results for sub-groups of teachers (i.e., lead teachers and teacher colleagues only), but time and budget constraints will not allow us to conduct similar sub-analyses for directly-impacted students (i.e., students of those lead teachers and teacher colleagues).

2. *Structural Differences across LEA Pilot Programs*

   As indicated by each pilot program's logic model (**Appendix C**) and the table of common program features across LEAs (Table C1), each pilot program is different from the others in certain ways, and many are very different—enough so that, while we have combined data from multiple pilots (allowing for stronger analyses of impacts on larger groups of participants and impacted students), we have done so cautiously and will continue to frame all results as tentative. This concern is our primary reason for reporting two sets of results in some cases: those for all six pilot programs, but also those for the four LEAs with the most similarities across their programs.

3. *Randomization and Non-Causality*

   As noted above, the pilots depend upon either teacher participant volunteers or teacher assignment to program participation based on one or more preconditions, or both. In addition, in most cases, students are not randomly assigned to the teachers who participate. None of these factors prevents us from determining statistically significant *correlations* between program initiative components and certain outcomes, but all of them do prevent us from determining *causation*.

4. *Lifespan of the Pilots and other Time-related Limitations*

   At its heart, a differentiated pay/advanced roles plan, no matter how it is implemented, is about changing school culture for the long term. The evaluation team knows from studies of the impact of changing even just one school culture variable (for example, changing principal leadership) that schools often experience a regression in outcomes for at least a year before even highly successful program begin to show positive results. The evaluation of the state's statewide and local Race to the Top experiments with strategic staffing (2010-2014) also suggested that fully-realized impacts of an advanced teacher roles plan often will not materialize for several school years, after preliminary impacts on school culture and teacher turnover have paved the way for later impacts on student performance (the top-level Theory of Change produced as part of that work is included in **Appendix F**). With only a three-year evaluation window, it will remain challenging to detect the potential full effects of any of these pilots.

Summary of Findings

Quality of Classroom Instruction

In focus groups and on surveys, participating teachers (both lead teachers and the teachers with whom they worked) indicated that they believed they grew in their instructional skills generally, their confidence in their ability, their use of data to inform instruction, and in their focus on their practice. In addition, lead teachers understood more clearly how content and instruction could be better aligned vertically across grades. Similar to Year 1, some teachers remained cautious about the extent to which the pilots impacted instruction, but these concerns were less pronounced in Year 2.

Quantitative analyses indicate that ATR schools appeared to outpace their matched comparison schools in one-year changes in School Accountability Growth scores (which estimate the degree to which educators help students meet or exceed their anticipated achievement levels). These differences were statistically significant for elementary schools across all six LEAs, as well as for elementary and middle schools combined in the four LEAs with similar pilot programs, but only in less restrictive models. In the most conservative models, these differences remained positive but not statistically significantly so.

Student Growth

Quantitative analyses indicate that, while one-year changes in student performance were larger for ATR schools on the whole than they were for comparison schools, the differences were not statistically significant, and they were not consistent across all ATR schools.

Attractiveness of the Teaching Profession

In Year 2, many teachers indicated that a combination of the availability of advanced roles and the salary supplement made participation in the pilots attractive. In at least two cases, the pilots' financial support allowed assistant principals to return to teaching. Several administrators believed that the pilots helped them recruit and retain not just lead teachers but also a stronger team of teachers overall.

Recognition of High-Quality Classroom Teachers

Uncertainties remained among teachers who were not in lead roles, as well as among some administrators, about the lead teacher selection process and the expectations for selected lead teachers. In short, they suggested that the selection criteria might identify some of the best *teachers*, but not necessarily the best *leaders*. In addition, administrators new to ATR schools noted the importance of identifying ways for them to take more ownership over implementation in their new schools.

Perhaps confirming some of these concerns, prior-year leadership ratings for successful applicants appeared to be similar to ratings for unsuccessful applicants, but successful applicants did have higher Educator Value-Added Assessment System (EVAAS) scores. In terms of EVAAS scores only, the candidate pool appeared to strengthen between 2016-17 and 2017-18.

Retention of High-Quality Classroom Teachers

Several lead teachers echoed feedback from Year 1 that access to advanced teaching roles gave them more reasons to stay in the classroom. New for Year 2 was a parallel acknowledgement among the teachers with whom they worked that the presence of the pilots also influenced their decision to stay in teaching, as well as their motivation.

Support for and Retention of Beginning Classroom Teachers

Lead teacher and administrator perceptions of the pilots' support for beginning teachers remained high, but, relative to Year 1, a higher proportion of teachers not in lead roles (some of whom were themselves beginning teachers) also believed that the program provided such support. Beginning teachers who worked with lead teachers appeared to feel better prepared and believed that they were improving more quickly than they would have on their own; however, the support may come at a financial cost, depending on the number of beginning teachers with whom a lead teacher is able to work, and at what level of intensity.

Leadership ratings for lead teachers rose notably between the year of their selection and the end of their first year in a lead role, but the data available for analysis were very limited in number and represented only four of six pilot LEAs.

Other Impacts

Positive Impacts: Among lead teachers in Year 2, there appeared to be a general, growing feeling of empowerment and confidence in their leadership. Also, some teachers and administrators believed that the overall culture in their schools was changing in positive ways as a result of the pilots.

Areas of Concern: Some teachers expressed hesitations about the presence of differentiated pay, concerns about possible mismatches between selection criteria and leadership expectations, and uncertainty about the overall purpose of the initiative. Concerns like these continue to underscore that *implementation* of an Advanced Teaching Roles initiative is just as critical to its success as is the philosophy behind the initiative.

Next Steps

One focus for Year 3 of the evaluation (July 2019-June 2020) will continue to be identification of LEA-level changes in implementation, as well as rationales for those changes. In addition, we will extend our analyses of impacts of the pilots on key quantitative outcome measures. In particular, we will attempt to assemble quantitative data that will allow us to identify any emerging trends in impacts of the presence of the pilots across two year of outcomes (in most cases, outcomes from the 2018-19 school year) on several school-level teacher quality, resilience, and effectiveness measures. We will continue these analyses at the cross-LEA, combined-data level, with our planned primary method of analysis being Interrupted Time Series models, which analyze trends in changes over multiple points in time.

New for the final report will be the team's initial efforts to address the last three evaluation questions:

9. Which pilot program or programs appear to be the most successful?
10. Which pilot programs appear to be most scalable?[16] What resources would the state need to commit in order to successfully scale them?
11. What are the costs and benefits associated with establishing advanced teaching roles? To what extent does the return on investment in establishing new compensation models that correspond with these roles justify the investment?

To help address these final questions, the evaluation team will consider not only the features of each program (**Appendix C**) but also the degree to which each pilot program appears to be designed to impact the evaluation's primary qualitative and quantitative outcomes of interest (Table 9, following page). In addition, the final report will include implementation lessons learned by the LEAs during the first three pilot years.

The current evaluation contract ends June 2020. Support from a third-party funder will allow the team to extend some qualitative work through December 2020, but, unless the rest of the current evaluation work is extended, most data collection for the evaluation will end in early spring 2020, with a final report completed in June based on data available to that point.[17]

[16] A key consideration for scalability is the degree to which an LEA appears to be able to sustain its program (entirely or in part) without external financial support.

[17] Analysis of 2019-20 quantitative outcomes may be possible with an extension of the state-supported portion of the evaluation.

Table 9 (to be completed for final report). Evidence of Design Components that Address Evaluation Criteria

Evaluation Criteria	**CHCCS**	**CMS**	**Edge-combe**	**Pitt**	**Vance**	**Washing-ton**
Focus on Improving Classroom Instruction						
Elements Related to Increasing Schoolwide Student Growth						
Effort to Make the Teaching Profession More Attractive						
Recognition to High-Quality Teachers						
Focus on Supporting Retention of High-Quality Teachers						
Focus on Supporting Beginning Teachers						
Scalability						

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Appendix A. Evaluation Questions

In addition to the evaluation questions specifically outlined in the enacting legislation, the table below also includes evaluation questions posed in the NCDPI Request for Information that do not correspond directly with questions in the enacting legislation (though most are derived from the legislation, either in part or in whole). In addition, during the early stages of the evaluation, some of the questions were modified slightly to better reflect an overall logic model of the initiative (developed by the Friday Institute, in partnership with representatives at NCDPI) that represents NCDPI's understanding of how the pilot program as a whole ideally contributes to all intended outcomes (**Appendix C**). Finally, some questions in the table were modified slightly to reflect the evaluation team's proposed approach to completing a comprehensive evaluation within the available budget.

Academic and Instructional Impact
1. Do advanced teaching roles improve the quality of classroom instruction?
2. Do advanced teaching roles increase school-wide student growth?
Impact on the Teaching Profession
3. Do advanced teaching roles and/or related local-level salary supplements, either collectively or individually, increase attractiveness of the teaching profession?
4. Do the pilot programs provide recognition to high-quality classroom teachers?
5. Do the pilot programs support retention of high-quality classroom teachers?
6. Do the pilot programs provide assistance to and support retention of beginning classroom teachers?
7. In what other ways do these pilot programs impact high-quality experienced classroom teachers?
Comparative Analysis of Pilot Programs
8. What do the pilot programs have in common? What are each pilot program's unique components?
9. As measured by the quantitative and qualitative outcomes of interest described above, which pilot program or programs appear to be the most successful?[18]
Financial and Policy Considerations
10. Which pilot programs appear to be most scalable? What resources would the state need to commit in order to successfully scale them? a. Should the state consider scaling one or more of the pilot programs?
11. What are the costs and benefits associated with establishing advanced teaching roles? To what extent does the return on investment in establishing new compensation models that correspond with these roles (as measured by the outcomes of interest described above) justify the investment?

[18] *Original evaluation question*: How do other strategic compensation models such as Project L.I.F.T. in Charlotte-Mecklenburg Schools and Project ADVANCE in Chapel Hill-Carrboro City Schools compare to the pilot program? Since both LEAs' submitted requests for pilot funding were granted, both programs are included in the overall evaluation; therefore, comparisons across all pilots will by default include comparisons with these programs.

Appendix B. Data Collection Tools

Surveys

Introduction and Consent

Thank you for your participation in [*For student version*: our survey about teaching in your school; *For all others*: the Advanced Teaching Roles Pilot Program survey. Our questions are intended to solicit your feedback on the advanced teaching roles established at your school and the impact of those roles on teaching and learning.]

We encourage your open and candid responses. All responses are kept strictly confidential. In reports, all responses will be combined, so no one will be able to connect you to your responses.

Your participation is entirely voluntary and you may exit the survey at any time. We appreciate your willingness to participate and thank you in advance for your insight.

If you have questions or technical difficulty while completing the survey, please contact [*contact information here*]

Please click on the links below to download and view the informed consent [*For student version*: for students and parents; *For all others:* for educators.] You may also print copies for your records.

[Hyperlinks to appropriate assent or consent forms]

[*For administrator and teacher versions*: If you are an educator in Pitt County Schools, you will be receiving a second survey from a separate group later this spring.]

Consent:

- “I have read and understand the above information. I have received a copy of this form. I agree to participate in this study with the understanding that I may choose not to participate or to stop participating at any time without penalty or loss of benefits to which I am otherwise entitled.”

- “No, I decline to participate.”

Demographic Items for All Surveys

1. Please select your school district. [dropdown: 6 pilot LEAs]
2. [*Do not include in student survey*] Are you aware of the following advanced teaching role opportunities related to your district’s [insert LEA program name]: [list roles based on response to #1] [Y/N]
3. [*Do not include in student survey*] What is your current role at your school? [dropdown: list all roles aligned with response to #2, including administrative; add other, open-end]

4. [*Do not include in student survey; display only for respondents who select a teacher role for #3*] How many years have you been a classroom teacher? [0-3, 4-6, 7-9, 10+]
5. [*Include* only *in student survey*] I am in [drop-down list] grade this year.

Advanced Role Teacher Items

You will notice that your specific lead teacher role is displayed in many of the items below. Please note that on occasion we use the generic term "advanced teacher" or "lead teacher" to reference all of the possible teaching positions or roles related to your district's Advanced Teaching Roles Program: [piped text, program name based on response to item #1].

1. Since I began my role as a [insert piped text from item #3], I believe that the quality of my classroom instruction has improved. [Agreement Scale; I'm not sure]
2. Since I began my role as a [insert piped text], I believe that my ability to lead other teachers has improved. [Agreement Scale; I'm not sure]
3. I believe that the quality of classroom instruction has improved among the teachers I support in my role as a [insert piped text from item #3]. [Agreement Scale; I'm not sure]
4. The aspect of my new role that most makes working at my school more appealing to me is: [*randomize order*]
    - Providing professional development
    - Receiving supplemental pay
    - Providing support for classroom teachers
    - Mentoring early-career teachers
    - Assuming more leadership responsibilities
5. I am more likely to recommend teaching as a profession, as a result of my experience in my advanced teaching role. [Agreement Scale]
6. All of the teachers in leadership roles like mine at my school are high-quality classroom teachers. [Agreement Scale; No other teachers are in my role at my school]
7. I believe that the supplemental pay provided for my advanced teaching role is adequate. [Agreement Scale]
8. I feel valued in my advanced teaching role. [Agreement Scale]
9. I believe that the responsibilities of my advanced position recognize the quality of my teaching. [Agreement Scale]
10. Working in an advanced teaching position with supplemental pay has increased the likelihood that I'll remain teaching in the classroom. [Agreement Scale]
11. I believe the [insert piped text, name of program] program provides adequate support to beginning teachers (teachers with 0-3 years of experience). [Agreement Scale]

12. As a [Insert piped text from item #3 response], I have been able to increase the amount of support provided to beginning classroom teachers (i.e., 0-3 years of experience) at my school. [Agreement Scale]
13. Rank these aspects of the [piped text, program name] program from most valuable to least valuable to your professional practice: [*rank order, click and drag*]
    - Professional development
    - Supplemental pay
    - Opportunity to provide support for classroom teachers
    - Opportunity to mentor early-career teachers
    - Leadership responsibilities

Non-Advanced Role Teacher Items

Please note that on occasion we use the generic term "advanced teacher" or "lead teacher" to reference all of the possible teaching positions or roles related to your district's Advanced Teaching Roles Program: [piped text, program name based on response to item #1].

1. How often do you work with a [lead teacher: piped text, list lead roles]? [Never, Once or Twice, Quarterly, Monthly, Weekly, Daily, I don't know]
2. Since I began working with a lead teacher in my school, the quality of my classroom instruction has improved. [Agreement Scale]
3. I believe my [lead teacher]'s leadership has been helpful to me. [Agreement Scale; N/A]
4. The aspect of the [lead teacher] roles at my school that most appeals to me is: [*randomize order*]
    - Providing professional development
    - Receiving supplemental pay
    - Providing support for classroom teachers
    - Mentoring early-career teachers
    - Assuming more leadership responsibilities
5. The opportunity to become a [lead teacher title] at my school influences my decision to continue teaching. [Agreement Scale]
6. The opportunity to receive supplemental pay as a [lead teacher role] at my school influences my decision to continue teaching. [Agreement Scale]
7. The opportunity to collaborate with [lead teacher role] teachers at my school influences my decision to continue teaching. [Agreement Scale]
8. All of the teachers in leadership roles at my school are high-quality classroom teachers. [Agreement Scale]
9. I value the professional expertise of the lead teachers in my school [Agreement Scale]

10. I believe the [insert piped text, name of program] program provides adequate support for beginning classroom teachers (i.e., 0-3 years of experience). [Agreement Scale]
11. The most valuable aspect of the [piped text, program name] program to my teaching is: [rank order, click and drag]
    - The professional development
    - The support provided for my classroom instruction
    - The mentoring provided to early-career teachers
    - The additional leadership responsibilities taken on by the [lead teacher role] in my school

Administrator Items

Please note that on occasion we use the generic term "advanced teacher" or "lead teacher" to reference all of the possible teaching positions or roles related to your district's Advanced Teaching Roles Program: [piped text, program name based on response to item #1].

1. Since the implementation of [piped text, program name], the quality of the leadership provided by our school's lead teachers has improved. [Agreement Scale]
2. Since the implementation of [piped text, program name] lead teachers have assumed more leadership roles or responsibilities. [Agreement Scale]
3. Since the implementation of [piped text, program name] the quality of non-lead teachers' instruction in our school has improved. [Agreement Scale]
4. The [piped text, program name] program allows me to identify high-quality classroom teacher leaders. [Agreement Scale; N/A]
5. I believe the [piped text, program name] is having a positive impact on the overall retention of teachers at my school. [Agreement Scale]
6. I believe the [insert piped text, name of program] program provides adequate support for beginning classroom teachers (i.e., 0-3 years of experience). [Agreement Scale]
7. What supports provided through the [piped text, program name] program do you think are most helpful to beginning teachers? [open-ended]
8. What additional supports could the [program] provide to better assist beginning teachers? [open-ended]
9. The most valuable aspect of the [piped text, program name] program for my teachers is: [rank order, click and drag]
    a. The professional development
    b. The support provided for classroom instruction
    c. The supplemental pay for lead teachers
    d. The mentoring provided to early-career teachers

e. The additional leadership responsibilities taken on by the [lead teacher role] in my school

Student Items

When you answer these questions, think about ***all*** of your teachers at this school this year.

1. Overall, I think my teachers understand the best ways to teach me. [Agreement Scale; I'm not sure]
2. I have learned a lot from my teachers this year. [Agreement Scale; I'm not sure]
3. I believe I have learned more from my teachers this year than I did last year. [Agreement Scale; I'm not sure]
4. I believe my teachers are ready to teach every day. [Agreement Scale; I'm not sure]
5. My teachers enjoy their jobs. [Agreement Scale; I'm not sure]
6. My teachers this year seem to enjoy their jobs more than my teachers did last year. [Agreement Scale; I'm not sure]
7. My teachers are respected and valued by their students. [Agreement Scale; I'm not sure]
8. I am considering teaching as a career. [Agreement Scale; I'm not sure]

Focus Group Protocols

Introduction:
First, I would like to thank all of you for taking the time to be here today. My name is [name], and I work for the Friday Institute for Educational Innovation at North Carolina State University.

Our purpose today is to discuss your perceptions of and experiences with the Advanced Teaching Roles Pilot program being implemented at your school. The results of our discussion will be used to investigate the impact of teacher staffing programs that provide opportunities for professional advancement and extra pay with the ability to remain teaching in the classroom.

I would like to begin by briefly discussing some basic features of the focus group, and some ground rules.

Disclosures

- Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate, or to stop participating at any time.
- The session will be recorded in order to have a complete record of our discussion. The discussion will be kept completely confidential. We will use code numbers in the management and analysis of the focus group data and your name will not be associated with any discussion results. Recordings will be erased at the completion of the study.
- I will begin the discussion by asking the group a question. Anyone may respond to the question. We would like to hear from everyone. You may ask clarifying questions any time.

- We expect our discussion to last approximately 30-45 minutes.

Again, thank you so much for your time today. Your responses will provide an invaluable service to assist the research team. Does anyone have any questions before we begin?

Advanced Role Teacher Group

Prior to each group interview, provide a brief overview of the local program including descriptions of each role created by the program.

1. Since the last time we spoke, has your school made any program adjustments that allow you to better support the professional growth of other teachers in your school?
    a. What roadblocks to your support efforts continue to exist?
        i. In what ways are those issues being addressed?
2. In what ways has your role allowed you to improve your own classroom instruction? (differentiate between spring and fall)
3. How, if at all, has your experience in your advanced teaching role changed your perception of the teaching profession? Has your perception changed from the last time we spoke? If so, how?
    a. Has your participation made the teaching profession more or less appealing or satisfying to you?
    b. To what extent does the opportunity to advance in your career impact the overall appeal of the profession to you?
    c. In what ways does the salary supplement impact the overall appeal of the profession to you?
4. Does the program recognize high-quality classroom teachers? If so, in what ways?
    a. In what ways has the program changed to better recognize high-quality classroom teachers?
        i. What do you think should be changed about the program so that it can better recognize high-quality teachers?
5. In what ways has your thinking about continuing to teach in the classroom changed this school year as a result of your leadership role?
6. In what ways do you provide support to beginning teachers?
    a. In what ways has your role changed, if at all, with regard to providing direct support to beginning teachers?
7. Apart from what we've already discussed, in what other ways has this program impacted your experience in the classroom?
    a. In what other ways has the program impacted your experience with other teachers?
    b. What has been the most valuable aspect of the advanced teaching roles program?

8. Apart from what we have already discussed, in what other ways has this program, or your position specifically, been adjusted since you began your new role?

Non-Advanced Role Teacher Group

Prior to each group interview, provide a brief overview of the local program including descriptions of each role created by the program.

1. In what ways have the program or the "lead" teachers at your school impacted your classroom instruction? [*Focus group moderator: Differentiate between overall program impact and specific lead teacher impact.*]
    a. In what ways has support from the "lead" teacher in your school changed this school year? If there has been notable change, how has that impacted your classroom instruction?
2. How, if at all, has the program (advanced teaching roles and extra pay) changed your perception of the teaching profession? How has your perception changed from the last time we spoke?
    a. To what extent does the opportunity to advance in your career impact the overall appeal of the profession to you?
    b. In what ways does the salary supplement impact the overall appeal of the profession to you?
3. Does the program recognize high-quality classroom teachers? If so, in what ways?
    a. In what ways has the program changed to better recognize high-quality classroom teachers? What aspects of the program should be changed to better recognize high-quality teachers?
4. How has your thinking about continuing to teach in the classroom changed based on the supports you've received through the program? [*Focus group moderator: Identify beginning teachers in the group to highlight their responses.*]
5. In what ways has lead teacher support to beginning teachers changed since the last time we spoke? [*Focus group moderator: Identify beginning teachers in the group to highlight their responses.*]
6. Apart from what we've already discussed, in what other ways has this program impacted your experience in the classroom?
    a. In what other ways has the program impacted your experience with other teachers?
    b. What has been the most valuable aspect of the advanced teaching roles program to your professional practice?
7. Apart from what we have already discussed, in what other ways has this program impacted your professional practice?

Administrator Group

Prior to each group interview, provide a brief overview of the local program including descriptions of each role created by the program.

1. In what ways has the program impacted your lead teachers' classroom instruction and other professional practices?
2. How has the program supported improvements in the classroom instruction of a) beginning teachers, and b) all other teachers?
3. Based on what you've observed or heard from your teachers, how has the program impacted the overall attractiveness of the teaching profession?
4. In what ways do you believe the program recognizes high-quality classroom teachers?
    a. How could the program be improved to better recognize high-quality classroom teachers?
5. Do you believe the program impacts your teachers' thinking about continuing to teach in the classroom? If so, how; if not, why not? [*Focus group moderator: Differentiate between lead teachers and all other teachers.*]
6. Describe how lead teachers at your school provide support to *beginning* teachers.
    a. How do you think this program impacts *beginning* teachers' decision to continue teaching?
7. Apart from what we've already discussed, in what other ways do you think this program has impacted your teachers' experiences in the classroom?
    a. In what ways has the program impacted your school's overall culture?
    b. What do you believe has been the most valuable aspect of the advanced teaching roles program for your teachers and school?

Appendix C. Pilot Program Narratives and Logic Models

What Do the Pilot Programs Have in Common? What are Each Pilot Program's Unique Components?

For the first two reports, the evaluation team worked with each participating LEA to construct LEA-level logic models that reflect the planned actions and intents of each pilot, and these are once again included in this report, in this Appendix. These logic models aided in the development of the evaluation—including development of the quantitative models used to estimate numerically measurable impacts of the pilots (detailed in the **Initial Quantitative Estimations of Pilot Program Impacts** section in the main text). They also informed the development of a matrix that summarizes the major points of comparison across programs (Table C1).

Table C1. Common Pilot Program Features

	CHCCS	CMS	Edge-combe	Pitt	Vance	Washing-ton
Components						
Professional devel.	✔	✔	✔	✔	✔	✔
Variable class sizes		✔	✔	✔	✔	
Teacher teams		✔	✔	✔	✔	
Teacher-Leader Roles[19]						
PD facilitator[20]	✔			✔		✔
Coach[21]		✔	✔	✔	✔	✔
Co-teacher[22]		✔	✔	✔	✔	
Mentor[23]	✔					
Team leader[24]		✔	✔	✔	✔	

[19] *Roles* are not the same as *position titles*; the roles in this table are those identified by the evaluation team as being covered by one or more positions across LEAs plans—regardless of an LEA's title for the person who takes on a given role. Corresponding positions in each LEA are identified in footnotes.
[20] CHCCS=PD Facilitator; Pitt=Facilitating, Multi-Classroom Teacher; WCS=Master Teacher
[21] CMS=Multi-Classroom Teacher; ECPS=Expanded Impact Teacher, Multi-Classroom Teacher; Pitt=Facilitating, Multi-Classroom Teacher; VCS=Multi-Classroom Teacher; WCS=Master Teacher
[22] ECPS=Expanded Impact Teacher, Multi-Classroom Teacher, Reach Associate; CMS=Multi-Classroom Teacher, Reach Teachers; Pitt=Facilitating, Multi-Classroom Teacher; VCS=Expanded Impact Teacher, Multi-Classroom Teacher, Reach Associate
[23] CHCCS=Mentor Teacher
[24] CMS, ECPS, Pitt, VCS=Multi-Classroom Teachers

As indicated by the table and the logic models, there are differences in each LEA's implementation; however, several of the pilots share at least a few components and roles in common—in part because three LEAs either currently are working with or recently have worked with a common third-party support provider.[25] These commonalities are important to keep in mind when reviewing the initial results of the quantitative component of the evaluation.

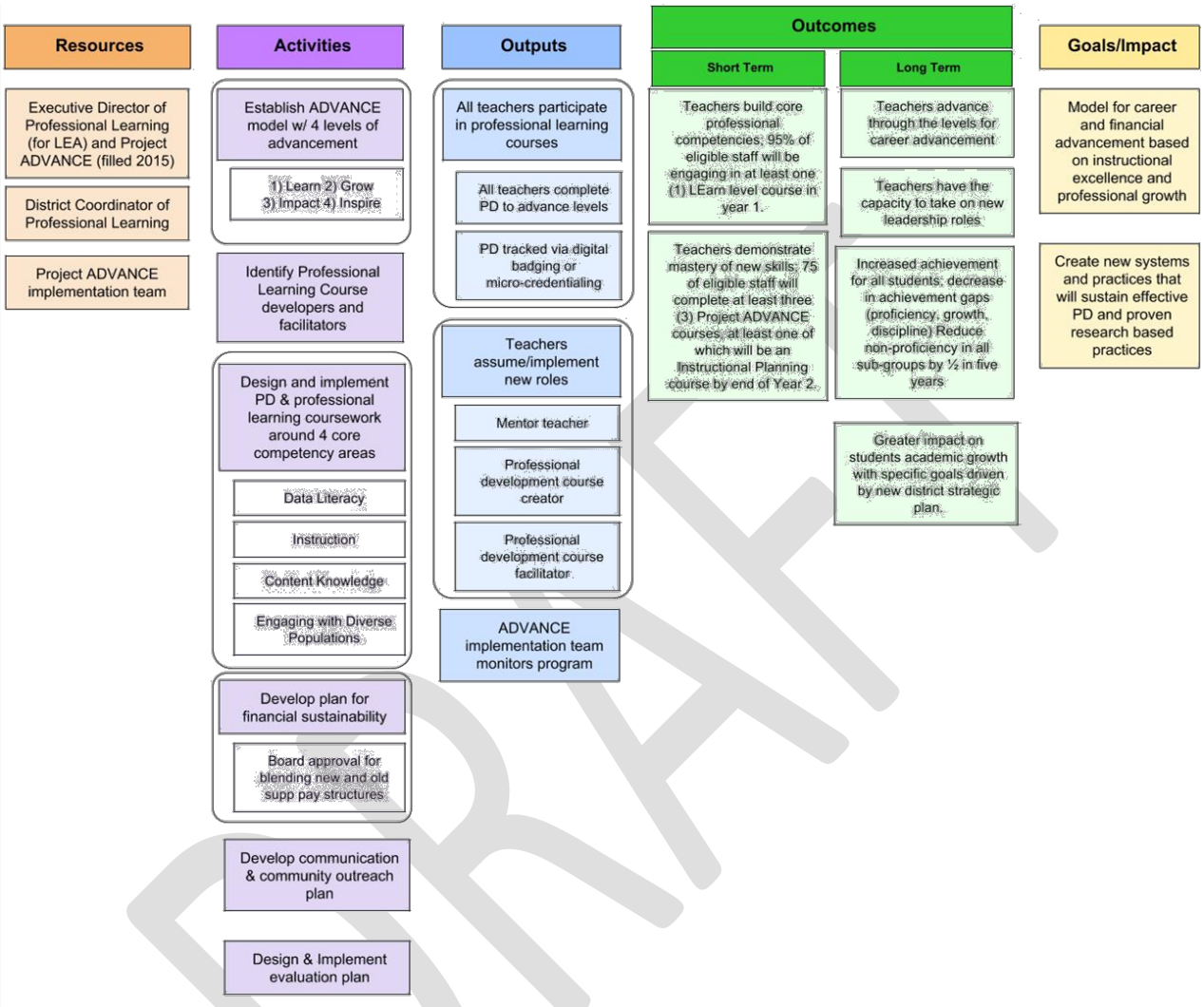
In acknowledgment of the iterative nature of each program's changing implementation, at the end of Year 2, the evaluation team asked each LEA to review and revise its logic model and program narrative to reflect adjustments and changes to their programs. Five LEAs responded to this request and either made minor modifications or more substantive adjustments to their logic models and narratives to more fully and accurately describe the current state of their programs:

- *Chapel Hill-Carrboro City Schools*: Updated their supplemental pay table (Table C1)
- *Edgecombe County Public Schools*: Refined their narrative by adding a description of their two types of Expanded Impact Teacher roles
- *Pitt County Schools*: Provided more details about advanced role eligibility; updated their supplemental pay table (Table C4)
- *Vance County Schools*: Updated their supplemental pay table (Table C5)
- *Washington County Schools:* Revised their logic model and narrative to include the current number of participating schools and teachers, as well as current training program activities

[25] Public Impact (http://publicimpact.com/), which promotes an advanced teaching roles model called Opportunity Culture, is working with Edgecombe and Vance on their pilots, and they formerly worked with Charlotte-Mecklenburg on an earlier iteration of their model. Each LEA is working with at least one additional support provider, but only Public Impact has worked across multiple LEAs.

Chapel Hill-Carrboro

Logic Model



Narrative

Overview. Chapel-Hill Carrboro City Schools' (CHCCS) Project ADVANCE is an educator career advancement model designed to support instructional excellence and professional growth. Most certified staff in the school system are expected to participate in Project ADVANCE. Initiative components include new professional development and support for research-based instructional practices. Staff include a Director of Professional Learning and Project ADVANCE, a Professional Learning Specialist, and 18 Project ADVANCE implementation team members comprised of teachers, administrators, counselors, and other support personnel.

Advanced Roles and Other Program Features

The Project ADVANCE model includes four levels of career advancement for teachers: ***Learn***, ***Grow***, ***Impact***, and ***Inspire***:

- ***Learn***: The Learn level of Project ADVANCE is the first level in our professional learning based teacher career ladder. Content at the Learn level covers the knowledge, skills, and practices that we believe staff members need to know and implement to be successful in their first three to five years in our district. Teachers and staff who are new to our district begin their work through Project ADVANCE and the associated professional learning at the Learn level. Upon completion of the Learn level, teachers and staff receive an annual salary increase of $1500. The Learn level is designed is to take teachers and staff between three and five years to complete.
- ***Grow***: For teachers with five to eight years of experience. Advancement beyond this level requires completion of professional development course sequences ("playlists") of a teacher's choosing, based on professional needs and interests. Each playlist equates to a minimum of 10 hours. All teachers are required to complete 4-6 required courses at this level. Teachers and staff who wish to deepen their professional learning can choose to engage in the playlists of learning. Those that complete the required courses and the required hours of playlists will advance to the next level and receive an additional $1500 salary increase for a total of $3000. The Grow level is designed to take between five and eight years to complete.
- ***Impact***: Teachers and staff that reach the Impact level are primed to assume leadership roles while also remaining in the classroom. This level is optional and not all teachers are required to complete it.
- ***Inspire***: For teachers who wish to continue in their advanced Impact roles.

The advanced roles that are currently available for teachers and staff include ***mentor teachers***, ***professional course developers***, and ***professional development course facilitators***:

- ***Mentor teachers*** are assigned to individual beginning teachers. Mentor teachers complete mentor training aligned to Project ADVANCE courses. Mentors receive $1,000 per year and also may serve as course developers or course facilitators.
- ***Course developers*** are LEA-level teacher content experts. Course developers write new courses or revise existing courses ($500 per course). Course facilitators are chosen via an application process. Teachers apply through the ADVANCE website or are referred by principals based on the teacher's specific content knowledge.
- ***Course facilitators*** teach or lead professional development courses. Facilitators must be at least one level above the level at which they facilitate courses. Courses can be face-to-face or virtual (with both synchronous and asynchronous interaction). Facilitators receive $500 per course. For the 2017-18 school year, 12 facilitators with year-long contracts and 20 facilitators total were responsible for developing and maintaining all district-level professional development.

ADVANCE professional development courses cover four core competency areas: ***data literacy***, ***instruction***, ***content knowledge***, and ***diverse populations***. Teachers are recruited to the courses via monthly emailed newsletters and a Project ADVANCE website.

The implementation team monitors teacher progress via a digital badging and micro-credentialing system that tracks professional development participation rates, course completions, and level advancements. Successful completion of a course or sequence is determined by competency-based assessments: Teachers build core professional competencies and demonstrate mastery of new skills as measured by artifact submission and a grading rubric built into the courses. In addition, the initiative incorporates classroom-level measures of student academic growth (increased achievement and decreased achievement gaps).

Design Process. CHCCS consulted with Battelle for Kids[26] to assist with program planning and design. A design team consisting of 30 education, government, and community members met to structure the program and identify the four core competencies. A communication team disseminated newsletters via email to all principals and teachers with links to a revised website.

The financial sustainability of the model relies on a blend of new and pre-existing supplemental pay structures approved by the CHCCS board.

Expected Outcomes. By engaging in ADVANCE, teachers will progress through career levels and have the capacity to engage in leadership roles. CHCCS expected 95% of eligible staff to complete at least one Learn level course in Year 1 (2017-18). By the end of Year 2, 75% of eligible staff are expected to have completed at least three Advance courses, one of which is an Instructional Planning course. Student achievement is expected to increase and student discipline incidences are expected to decrease. Finally, CHCCS has a longer-term target of decreasing by 50% student subgroup non-proficiency ratings on achievement tests.

Table C1. CHCCS Supplemental Pay Table

Position Title	Salary Differential
PD Course Creator	$500 / course
PD Course Facilitator	$500 / course
Mentor Teacher	$1,000
Learn Level	$0
Grow Level	$1,500
Impact Level	$3,000
Inspire Level	$5,000

[26] https://www.battelleforkids.org/

Qualitative Data Notes Specific to Project ADVANCE

As discussed in the **Data and Methods** section in the main text, CHCCS's advanced teaching roles pilot is unlike the other five pilots; as one CHCCS administrator succinctly put it, "[O]ur model is significantly different." Among other things, the Project ADVANCE does not directly address the first of the four intents of the pilots as outlined in the enacting legislation (allowing highly-effective classroom teachers to reach an increased number of students), focusing instead on providing the tiered levels of professional development opportunities described above.[27]

For many of the topics discussed in the **Analysis of Year 2 Qualitative Data** section above, input from CHCCS administrators and teachers easily integrated into the larger set of data collected across all six LEAs. However, because of the notable differences between the CHCCS program and the other five pilots, some of the observations and perceptions were not as relevant to discussions of the Advanced Teaching Roles pilots as a whole. In this section, we highlight two areas of difference in CHCCS educators' perceptions of their Advanced Teaching Roles pilot relative to their colleagues' perceptions of the pilots in the other five LEAs.

Improvement in Classroom Instruction

Overall, like their colleagues in other LEAs, CHCCS administrators believe that Project ADVANCE has had a positive impact on instruction, and they hope to continue to refine the program so that it better meets staff needs. Teachers who had made the most progress along the Project ADVANCE pathways also noted that the initiative supported vertical alignment and general teacher professionalization. Some teachers expressed concerns, however—particularly about the initiative's integration of past professional development work, as well as about the potential longevity of the initiative:

> I resent that I have to do graduate-level work in Equity 101. . . . I've been in the district for 23 years and have done numerous equity trainings, [but] none of that counts.
>
> When I hear the words [Project ADVANCE], it just makes me cringe. It doesn't have the most positive [association], and with the change in leadership, over the past couple of years under new administration, I mean, being here for as many years as I have been, I do expect it to go away, I don't think it's going to last. And that is a little bit sad to me because it had some great potential.

In addition, several teachers shared that the supplemental salary was the primary motivation for their participation in Project ADVANCE, and that they moved through the first level of professional development as quickly as they could to become eligible for the supplement. One teacher theorized that, with "limited bandwidth," many teachers are only motivated to take professional development courses if they count toward their Project ADVANCE status (and thus toward their compensation).

[27] These differences also are relevant to (and are addressed in) the quantitative analyses included in the main text.

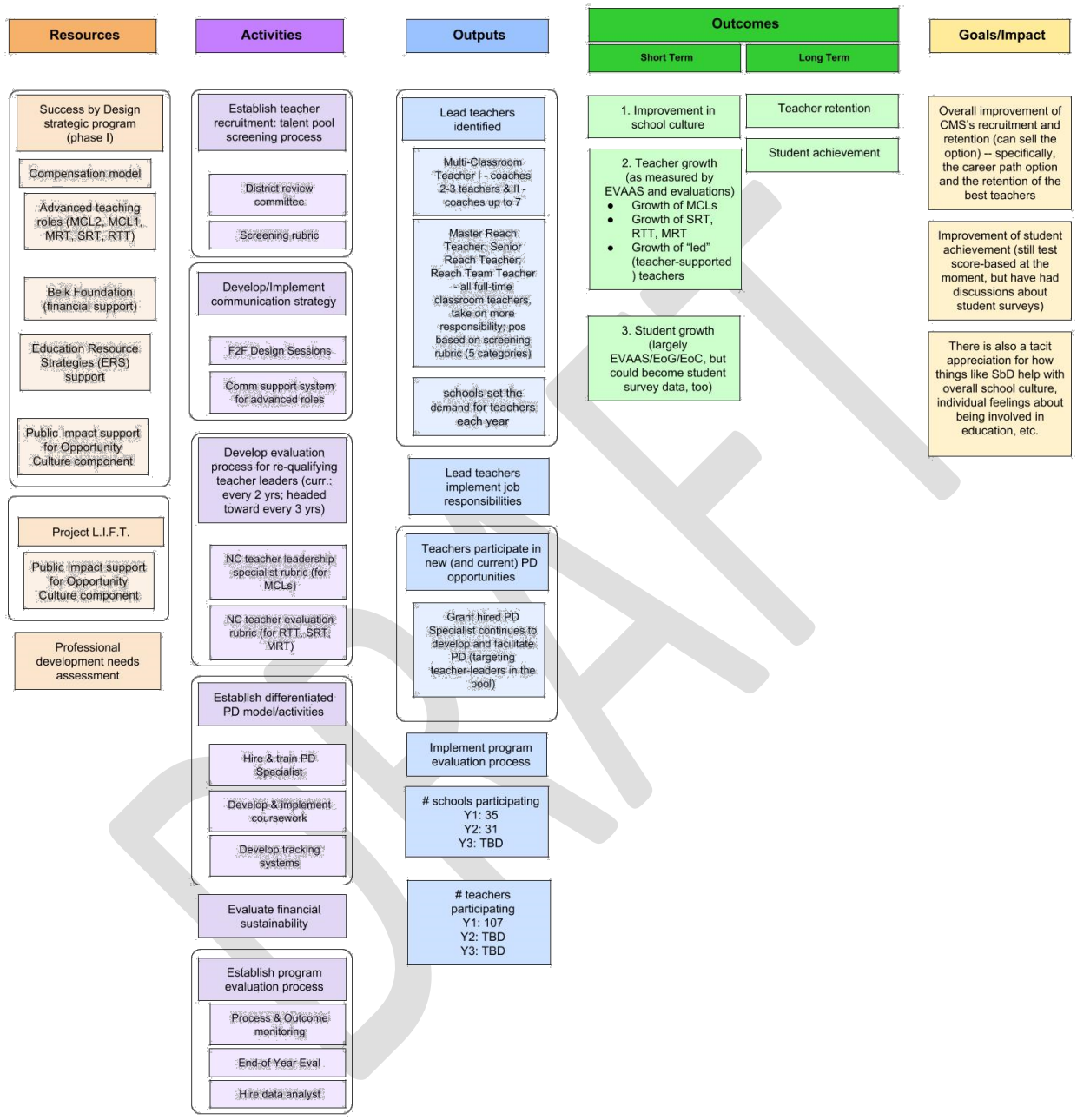
Retention of High-Quality Teachers

In addition, CHCCS administrators were less certain about Project ADVANCE's influence on teachers' decisions to stay in the classroom than were their peers in other LEAs:

> People have positive things to say about Project ADVANCE in isolation but I don't think that necessarily has any impact on people deciding to stay or leave the profession. . . . That is a hard jump to make because there are so many things that go into someone's decision to go in to the teaching profession or remain in the teaching profession, and many of those are outside of our district's control. . . . (Administrator)

Charlotte-Mecklenburg

Logic Model



Partially-Updated Narrative

Overview. In July 2019, Charlotte-Mecklenburg Schools' (CMS) Success by Design (SbD) advanced teaching roles program formally merged with CMS's Project LIFT program to become the Teacher-Leader Pathways (TLP) program, the foundational component of CMS's new Department of Teacher-Leadership. Updates regarding how this merger impacts the schools in the original Advanced Teaching Roles Pilot cohort (Cohort 5 of CMS's SbD; these are the CMS

schools tracked by this evaluation) or the operation of TLP relative to SbD and Project LIFT were not provided ahead of publication of this report; we will include updates in the final report (June 2020). As a result, we have made minimal changes to the narrative below, pending confirmation of additional changes by CMS representatives.

TLP has three goals: to improve recruitment and retention of effective teachers; to bolster student achievement; and to elevate the overall culture of participating schools. Teacher-Leader Pathways is a modification of earlier efforts to establish advanced teacher roles in the district; TLP's compensation models and advanced teaching roles are closely related to those established as part of SbD (the primary program upon which TLP is based) and Project LIFT, which incorporated Public Impact's Opportunity Culture[28] model for supporting advanced teaching roles. TLP's structure also is informed by a recent district professional development needs assessment.

The first schools in TLP's immediate predecessor, the SbD program, started their "Design Year" (planning year) during the 2013-14 school year, and the number of participating schools has increased each year. By the 2019-20 school year, 57 schools and over 200 teachers were participating in the TLP program.

Though it shares a history with previous CMS advanced teaching roles efforts, TLP/SbD introduced several modified or new elements, including its own teacher recruitment and talent pool screening process, communication strategy, process for re-qualifying teacher leaders, differentiated professional development activities (along with a dedicated Program Specialist), financial sustainability plan, and program evaluation process.

Advanced Roles and Other Program Features. The heart of the TLP program is the wide array of advanced teaching roles nested within two broad categories:

- ***Multi-Classroom Leaders*** are initially responsible for coaching two to three teachers, with an expanded responsibility of up to seven teachers as they advance in that role.
- ***Reach Teachers*** (Reach Team Teachers, Senior Reach Teachers, and Master Reach Teachers) are full-time classroom teachers who take on increasingly challenging school leadership responsibilities as they advance. Each participating school sets the specific roles it needs its Reach Teachers to play, and roles can change from year to year.

Teachers selected for advanced roles follow a Professional Development Pathway—differentiated professional development activities provided by a newly-hired professional development specialist and other TLP and CMS staff—that includes courses and workshops designed to build skills specific to leading other adults. In addition, TLP teacher-leaders re-qualify for the program every two years through a shortened application progress and rubric-based assessment, but TLP is modifying this process based on data collected from previous years.

Design Process. Most schools are recruited to TLP through internal newsletters, webinars, and word of mouth. After successful completion of a readiness application and a review of the TLP

[28] http://opportunityculture.org/opportunity-culture/

school-specific design process with district staff, the school shares program details with school personnel.[29] Next, the TLP Program Manager meets with school staff and conducts three sessions on the program. At this point, teacher recruitment begins and the participating school identifies staff members who are interested in applying for the advanced teaching positions. Interested teachers go through a district-wide talent pool assessment process, during which teachers' applications are assessed using a district-designed rubric.

Expected Outcomes. Short-term expected outcomes for the grant include improvements in school culture as measured by the The New Teacher Project Insight survey, which measures school culture, and student surveys. In addition, program developers expect to see professional growth (as measured by EVAAS and teacher evaluations) at the school level, as well as growth in the number of teachers who take on advanced roles. Longer-term expected outcomes include student growth (as measured by EVAAS) and specific evidence of growth among teachers supported by the advanced teachers (as measured by EVAAS and teacher evaluations). Ultimately, CMS hopes to see TLP schools outperform district and state results on student achievement, school culture, and teacher retention and effectiveness.

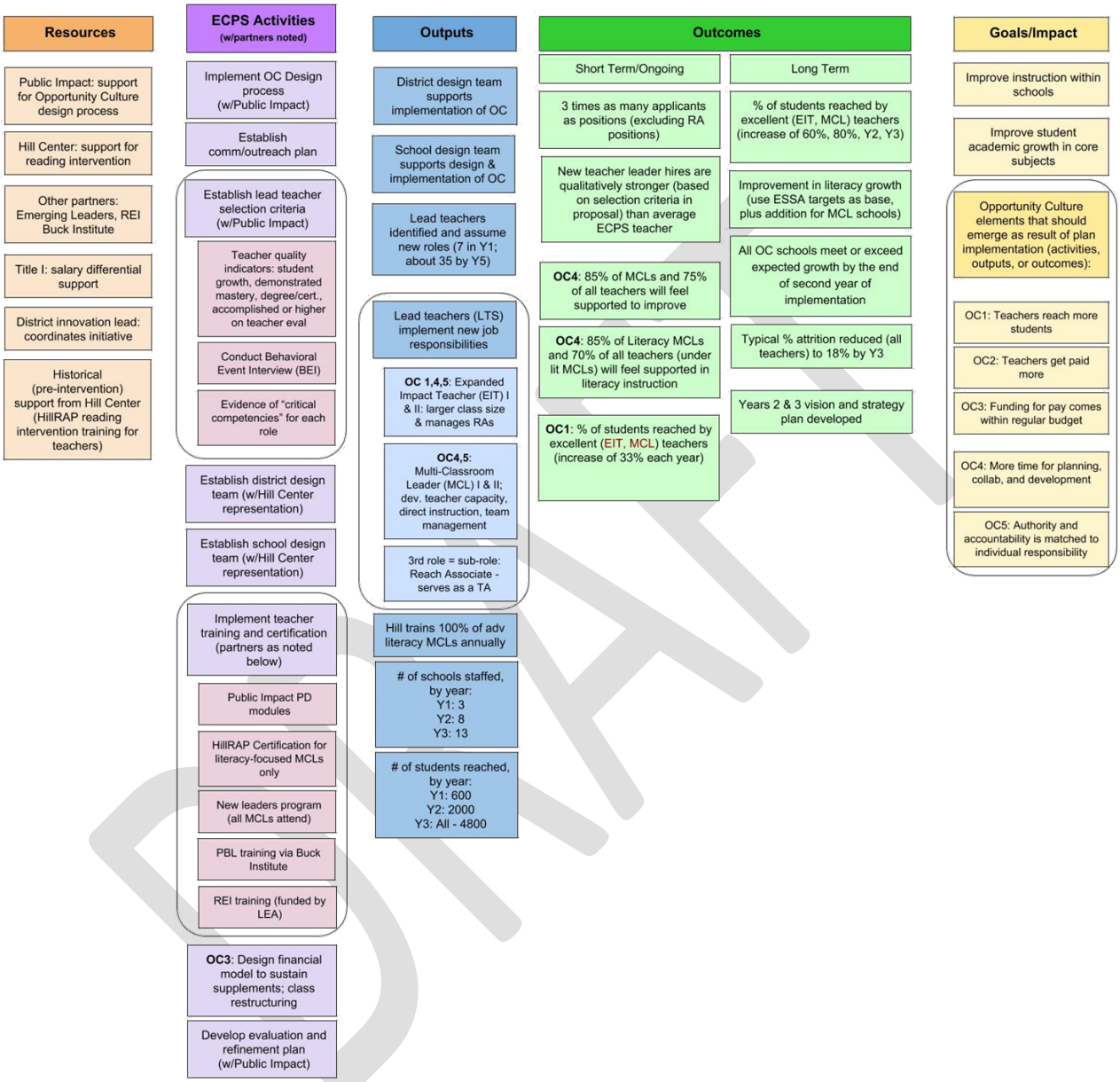
Table C2. CMS Supplemental Pay Table

Position Title	Salary Differential
Reach Multi-Classroom Leader 2	$20,000
Reach Multi-Classroom Leader 1	$13,000
Master Reach Teacher	$9,800
Senior Reach Teacher	$6,000
Reach Team Teacher 1	$2,000

[29] In some cases, SbD-trained principals who move to non-SbD schools or who are opening new schools can convert those schools to SbD without going through the entire application process.

Edgecombe

Logic Model



Updated Narrative

Overview. The purpose of Edgecombe County Public Schools' (ECPS) advanced teaching roles program--Innovation Grounded in Research, Results, and ECPS Strategic Priorities--is to extend the reach of excellent teachers beyond their own classrooms. Leadership roles allow core subject teachers to impact instruction across multiple classrooms in their schools, with a goal of improving schoolwide student academic growth. In partnership with Public Impact, ECPS is

implementing an Opportunity Culture[30] framework to help teacher leader reach more students while also providing additional time for planning, collaboration, and professional development.

Advanced Roles and Other Program Features. In keeping with the Opportunity Culture model, ECPS created two advanced teaching roles and one supporting role:

- ***Expanded Impact Teacher*** (EIT): There are two types of EITs. The first type takes on larger class sizes, which, in addition to freeing up time for teachers in other advanced roles, also helps address challenges related to teacher recruitment in rural districts. The second type takes on significant additional leadership responsibilities, such as planning and leading all interventions and Professional Learning Communities.
- ***Multi-Classroom Leader*** (MCL): MCLs engage in teacher capacity development, provide direct instruction to other teachers, and participate in team management.
- ***Reach Associate*** (RA): RAs provide supplemental instruction in EIT classrooms in a teaching assistant role, which helps ensure that more students are taught by effective teachers.

Teacher training is provided by ECPS in conjunction with several third-party partners:

- ECPS provides education leadership training developed by New Leaders for New Schools[31] to all MCLs
- Public Impact provides professional development modules on various topics
- The Hill Center[32] provides training and certification in literacy interventions for teachers interested in becoming literacy MCLs
- The Buck Institute[33] provides training in problem-based learning
- The Racial Equity Institute[34] (REI) provides training on racial equity
- CT3[35] provides No-Nonsense Nurturer training in support of developing a stronger student culture

Design Process. During the planning phase for their advanced teaching roles program, ECPS defined selection criteria for the new teaching roles, established district and school design teams, developed a community outreach plan, and outlined a multi-year roll-out plan. The roll-out plan is based on high school feeder patterns, with all schools along a feeder pattern brought in at the same time. ECPS has three high schools; the third feeder pattern will be brought in to the program after the 2018-19 school year.

Next, teachers were selected for the new roles based on a variety of teacher quality indicators, including student growth, demonstrated teaching mastery, and teacher evaluations at or above the

[30] http://opportunityculture.org/opportunity-culture/
[31] http://newleaders.org/
[32] https://www.hillcenter.org/
[33] https://www.bie.org/
[34] https://www.racialequityinstitute.com/
[35] http://www.ct3education.com/

Accomplished level. These teachers also completed behavioral interviews and provided evidence of meeting critical competencies for each advanced role. In partnership with Public Impact, the design team also constructed an evaluation and program refinement plan.

Finally, the district design teams and district innovation lead designed a financial model that would allow the district to sustain the advanced teacher supplements and class restructuring beyond the pilot timeline by expanding the ways in which the district uses its Title I funds. In addition, because the first three schools implementing Opportunity Culture have been designated as "restart" schools[36], the district has even more financial flexibility.

Expected Outcomes. District leaders have identified an increase in the pool of advanced teachers, expansion of the proportion of students who are taught by excellent (EIT and MCL) teachers, improvements in student expected growth, and an increase in teacher retention rates as desired outcomes of the program. The district anticipates that, once the program is fully established, there could be up to three times as many advanced teacher applicants as positions. Currently, the program has filled 11 positions in three schools, and district leaders are targeting 45 to 50 positions available across 13 schools some time over the next three years.

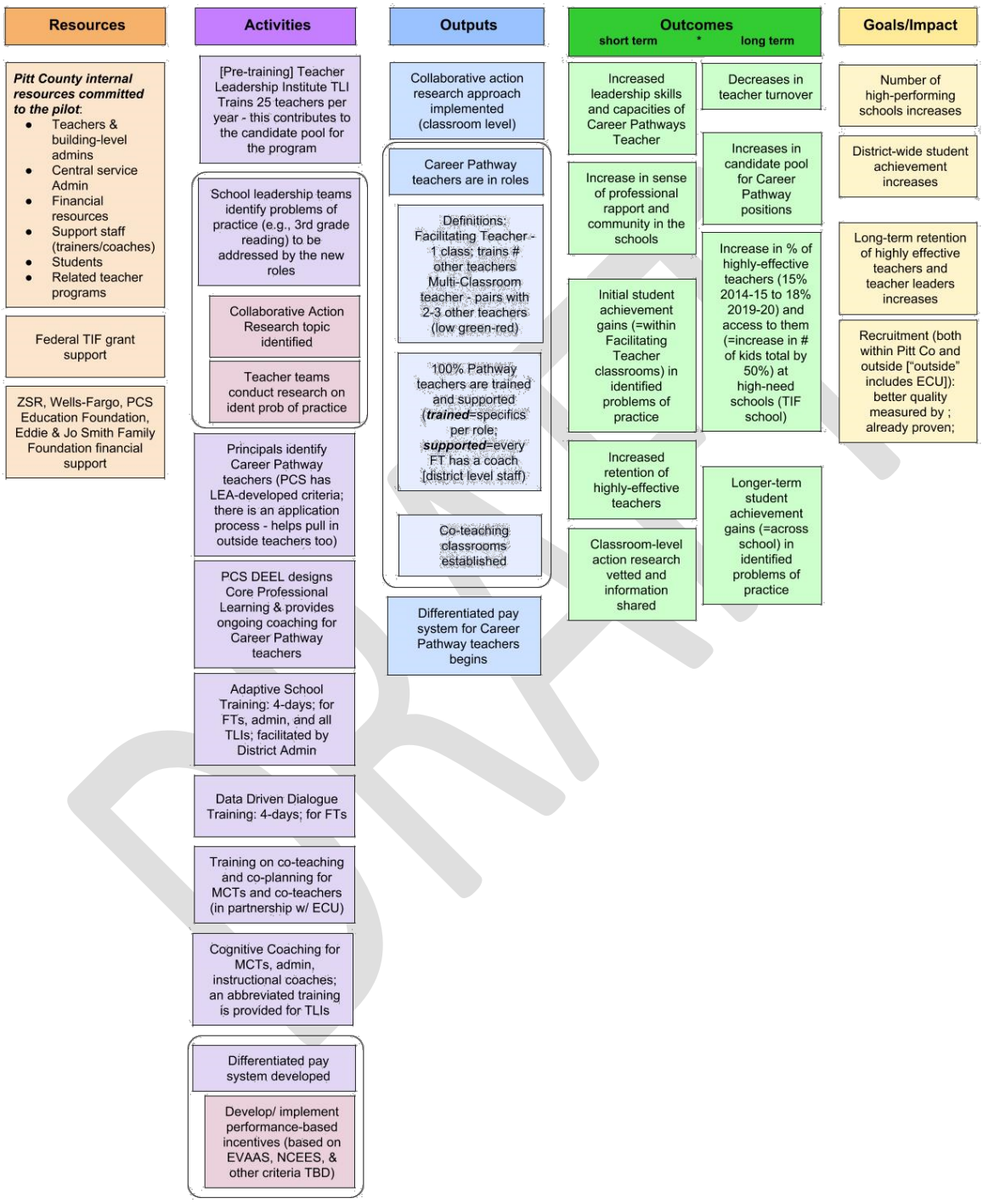
Table C3. ECPS Supplemental Pay Table

Position Title	Salary Differential
Multi-Classroom Leader I	10-15% of salary
Multi-Classroom Leader II	20-30% of salary
Expanded Impact Teacher I	10-15% of salary
Expanded Impact Teacher II	20-30% of salary

[36] Restart schools are part of a school improvement model in which persistently low-performing schools apply for charter school-like flexibility that allows them to enact a localized plan to increase student achievement. Examples of these flexibilities: length of the school day, use of state funds, and teacher licensure. Restart schools remain under the supervision of the local school board.

Pitt

Logic Model



Updated Narrative

Overview. The goal of Pitt County Schools' (PCS) Recruit-Retain-Reward (R3) Framework is to increase the number of high-performing schools across the district by improving the recruitment of high-quality teachers and the long-term retention of highly-effective teachers and teacher leaders. The primary method for accomplishing this goal is the introduction of several Career Pathways for classroom teachers. PCS has committed multiple internal resources to the pilot, including central service administrators (the R3 Leadership Team), 12 district-level trainers/coaches from PCS's Division of Educator Effectiveness and Leadership[37] (DEEL), and 39 school instructional coaches. In addition, the program is supported by related initiatives, such as the district's Teacher Leadership Institute and Key Beginning Teacher Program (sponsored by the Pitt County Educational Foundation).

Advanced Roles and Other Program Features. A Career Pathway teacher fills one of two roles in a school:

- ***Facilitating Teachers (FTs)*** teach one class but train other collaborative teachers (CTs) in a variety of topics. The initiative's goal is to have three CTs for every FT. This team of four identifies and works on resolving a problem of practice (detailed below).
- ***Multi-Classroom Teachers (MCTs)*** co-teach with two or three other teachers who are either under-performing or inexperienced. This co-teaching includes classroom instruction, co-planning, and collaborative student assessment. MCTs also address specific personnel needs.[38]

Principals hire eligible Career Pathway candidates based on a districtwide application process. Career Pathways teachers can be identified within the district or as part of the hiring process for teachers new to the district.

Each participating school localizes its implementation of the program to meet its needs. First, the school leadership team identifies a problem of practice to be addressed by its FTs. Once a Collaborative Inquiry topic is identified, FTs research the topic, implement appropriate interventions in their classrooms, share their results, and make instructional adjustments based on those results.

Career Pathways teachers are provided ongoing coaching by DEEL coaches and are trained in DEEL-identified Core Professional Learning areas. Topics include data-driven dialogue training, co-teaching and co-planning training (in partnership with East Carolina University), Cognitive Coaching[SM39], and Adaptive School Training.[40] In addition, PCS provides pre-training for up to 25 future Career Pathway teachers annually through the Teacher Leadership Institute.

R3 includes support for performance-based incentives based on individual EVAAS ratings, North Carolina Educator Evaluation System (NCEES) ratings, and other criteria. All full-time

[37] https://successforeverychild.com/
[38] In 2017-18, PCS identified 54 FTs (target: 66 FTs) and 177 CTs (target: 198); for 2018-19, the goal is to identify 96 FTs, 288 CTs, and 18 MCTs.
[39] http://www.thinkingcollaborative.com/seminars/cognitive-coaching-seminars/
[40] http://www.thinkingcollaborative.com/seminars/adaptive-schools-seminars/

classroom teachers are eligible to apply for an advanced role position. In addition, some teachers are eligible to receive an annual, one-time bonus based in part on student performance scores as measured by EVAAS. Teachers who meet all criteria, including either: being rated in the top 25% of the state or district on a standardized test in mathematics or reading; or who receive a "blue" EVAAS rating in other subjects, will receive a one-time bonus from either the state or district, with the state given first priority. These teachers also are eligible to apply for the Growth Teacher (GT) role. GTs mentor other teachers who did not receive the bonus with the aim of helping them improve their practice so that they can receive the bonus and meet other criteria for being identified as "highly effective."

In addition, administrators are eligible to receive *either* a state or local bonus for serving at Blue Schools, as decided by the Principal Advisory Council, with the state bonus given first priority.

Design Process. In order to support the program's size, PCS secured funding from several sources in addition to the state-provided pilot funding. Key financial support is provided by a federal TIF grant, and PCS also partners with multiple non-public partners, including the Wells-Fargo Foundation, The Eddie and Jo Allison Smith Family Foundation, the Pitt County Education Foundation, and the Z. Smith Reynolds Foundation.

Expected Outcomes. A key anticipated early outcome is that Career Pathways teachers will show increased leadership skills and capacity as measured by annual growth on the NCEES and on a district-developed teacher leadership rubric. PCS also expects to see evidence of an increased sense of professional rapport and community in schools, along with higher retention rates of highly-effective teachers and increases in the number of those teachers who work in the district's highest-need schools; as a result, overall teacher turnover should decrease. Finally, PCS hopes to see an increase in the size of the candidate pool for the Career Pathways program. As the number of Career Pathways teachers grows and as Career Pathways teachers identify, research, and address problems of practice, the district expects to make progress toward the ultimate longer-term goal of increasing gains in student achievement.

Table C4. PCS Supplemental Pay Table

Position Title	Salary Differential
Facilitating Teachers	15% of salary
Multi-Classroom Teachers	30% of salary

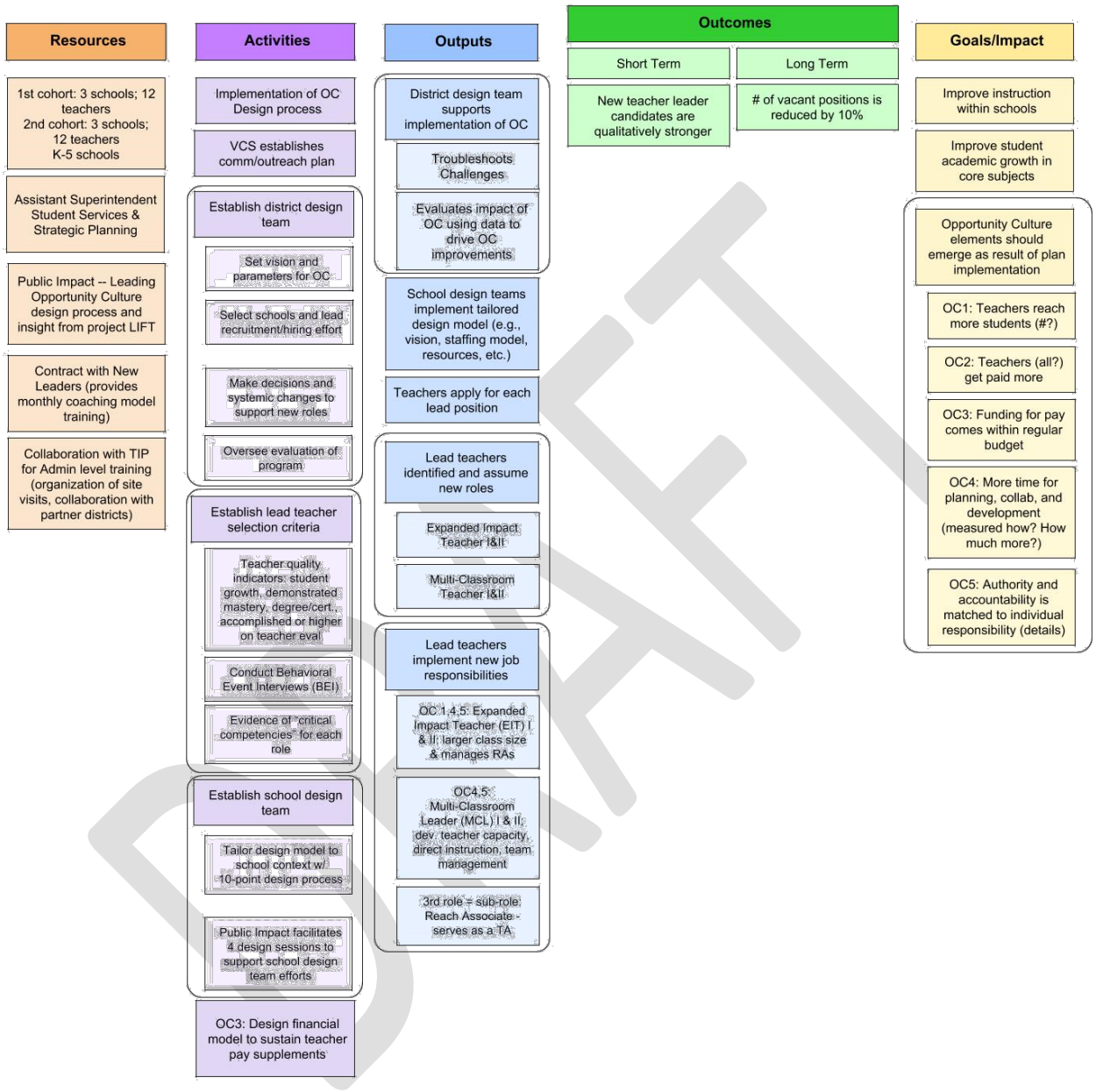
Other Supplements	Salary Differential
Collaborating Teacher*	$1,200
Tchr. Ldrshp. Inst. Completion	$4,800 (paid over 2 yrs)
Blue Teachers (+2 EVAAS)	$2,500
Growth Teachers	$500/teacher (max $1,000)
Principals at Blue Schools**	$5,000
Asst. Princs. at Blue Schools	$3,500

* Pay increased in October 2018 to match the expectations of the Collaborating Teacher role

** Principals who receive state bonus pay for school performance are not eligible to receive local bonus pay.

Vance

Logic Model



Updated Narrative

Overview. Vance County Schools (VCS) is working in partnership with Public Impact and New Leaders for New Schools to "Extend the Reach of Great Vance Teachers" by implementing

Public Impact's Opportunity Culture[41] approach to providing advanced roles for classroom teachers. The goals are to improve instruction within schools and improve student academic growth in core subject areas.

Advanced Roles and Other Program Features. The VCS version of Opportunity Culture includes three advanced teaching roles:

- ***Expanded Impact Teacher* (EIT)**: EITs have larger class sizes, which helps ameliorate some of the challenges associated with teacher recruitment in rural districts by creating smaller-class settings for new teachers. EITs use technology-delivered content coupled with assistance from teaching assistants and Reach Associates to provide instruction to students.
- ***Multi-Classroom Leader* (MCL)**:[42] The MCL is the lead classroom teacher for a team of teachers and is responsible along with the teacher of record for the performance of all students taught by the teacher team. MCLs act as instructional coaches, teach classes, and provide support to other classrooms by facilitating planning for instructional delivery and identifying and troubleshooting student learning difficulties. MCLs are invested in their team's student outcomes and take responsibility for providing coaching to improve those outcomes.
- ***Reach Associate*** (RA). RAs are teaching assistants who supplement non-instructional and instructional duties, including classroom management in EIT and other classrooms. Their presence increases student exposure to effective teachers.

Teachers are selected for EIT and MCL teaching roles based on a variety of teacher quality indicators, including student growth, demonstrated teaching mastery, and teacher evaluations at or above the state-defined Accomplished level. In addition, the district-level design team identifies the critical competencies that it believes will best indicate a teacher's ability to succeed in an advanced teaching role in a VCS school. Candidates also take part in behavioral interviews and provide evidence of meeting critical competencies for each advanced role. Finally, principals of participating schools conduct interviews with candidates identified by the district-level team.

VCS anticipates identifying two cohorts of teachers over the three-year pilot period, with each cohort comprised of 12 teachers[43] across three schools. The Assistant Superintendent of Student Services and Strategic Planning provides oversight for the pilot, and each partner organization provides specific supports. Public Impact is the primary provider of professional learning for district- and school-level teams (as part of the Opportunity Culture design process), New Leaders for New Schools provides monthly coaching training, and TIP provides administrator-level training.

Design Process. VCS's district-level design team is composed of three principals (from participating schools) and VCS administration. This team sets the vision and parameters for Opportunity Culture, identifies participant schools, establishes the advanced teaching roles selection criteria, leads recruitment and hiring efforts (including interviewing candidates),

[41] http://opportunityculture.org/opportunity-culture/

[42] There are also two tiers (levels) within both the EIT and MCL categories.
[43] 4 EITs, 4 MCLs, and 4 RAs

implements systemic changes that support the new teaching roles, and oversees the evaluation of the program.

School-level design teams tailor the overall district model to fit the specific needs of each school and also provide input on teacher selection. Each school's design is unique, but each must align to 10 shared design principles.[44] Public Impact facilitates four sessions that support each school-level design team's efforts. Once teacher leaders are hired and placed, the design teams provide leadership on any needed design model adjustments.

Expected Outcomes. In the near term, VCS expects new teacher leader candidates to be qualitatively stronger, as measured by past EVAAS and student growth data. VCS expects its most effective teachers to be able to reach more students while also increasing the time available to them to provide leadership for, plan, and collaborate with colleagues. Over time, VCS expects to reduce its number of vacant teaching positions by 10 percentage points. Currently, teacher turnover in VCS is 22%.

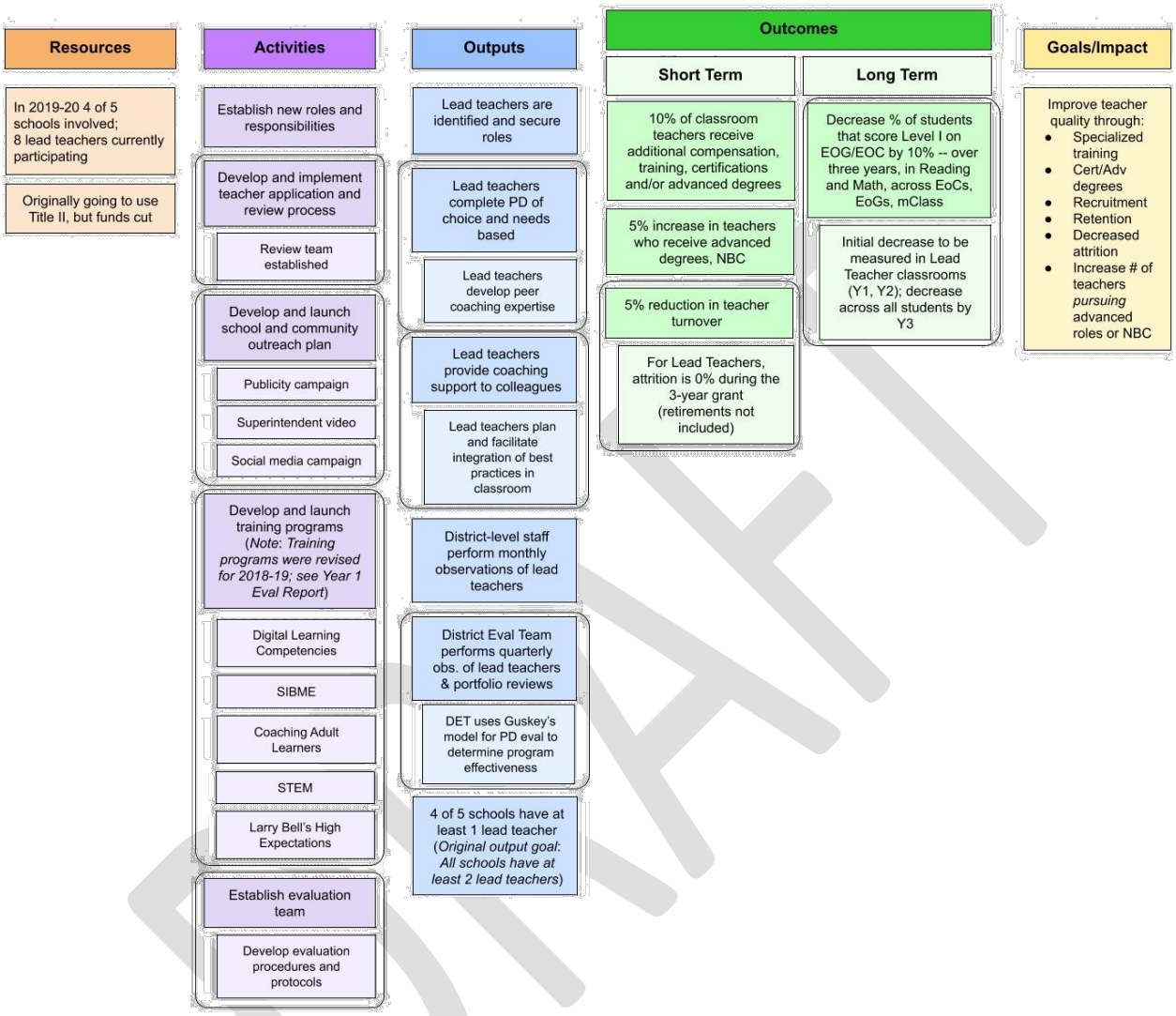
Table C5. VCS Supplemental Pay Table

Position Title	Salary Differential
Multi-Classroom Leader I	$7,000 salary differential
Multi-Classroom Leader II	$10,000 salary differential
Expanded Impact Teacher I	$5,000 salary differential (33% more students)
Expanded Impact Teacher II	$7,000 salary differential (50% more students)

[44] http://opportunityculture.org/the-opportunity-culture-principles/

Washington

Updated Logic Model



Updated Narrative

Overview. The goal of Washington County Schools' (WCS) Lead Teacher Initiative is to improve teacher quality through specialized training, advanced certification and degrees, better recruitment and retention of quality teachers, and decreased attrition. Currently, there are eight teachers participating across four schools; all WCS schools except for one (Creswell Elementary School) have at least one lead teacher on staff.

Advanced Roles and Other Program Features. The key lead teacher role is the ***Master Teacher*** (MT). The primary role of the MT is to provide professional development to other teachers. MTs develop and deliver a minimum of four participant-evaluated professional development products

per year that align not only to district-identified needs but also to individual MT strengths and interests.

MTs also receive professional development support, including training on the Larry Bell strategy[45] during Year One and additional training in Digital Learning Competencies, SIBME, STEM, and Coaching Adult Learners in subsequent years. WCS also provides additional training to meet specific needs identified by MTs.

Another MT responsibility is to provide 1:1 coaching support for their colleagues, with a focus on integrating best practices into their classroom routines. MTs provide this support through their school Professional Learning Communities and during half-day professional development days. For the 2019-20 school year, MTs also will have access to SIBME (Seeing Is Believing), an online video coaching and collaboration platform, to provide individual support for their colleagues. To prepare, MT training also includes peer coaching professional development. In addition, the training provided during the 2018-19 school year will be continued in 2019-20. Because all of these duties and responsibilities are in addition to their work as teachers, MTs continue to teach the same number of students and classes.

Design Process.[46] Existing WCS staff (the superintendent, assistant superintendent, Chief Personnel Officer) and a Regional Education Facilitator and consultant from NCDPI developed each of the five main components of the initiative: 1) New roles and responsibilities for lead teachers; 2) A teacher application and review process; 3) A school and community outreach plan; 4) The various training programs; and 5) An evaluation team. The Chief Personnel Officer and Regional Education Facilitator reviewed teacher applications and conducted interviews. As part of the outreach plan, a promotional video featuring the district superintendent was filmed, posted on the district website, and emailed to all district personnel at the end of the 2016-17 school year to recruit teachers.

Expected Outcomes. The evaluation team identified key data points for measuring the success of the program, including student growth data, evaluation forms and self-reflection forms completed by MTs each semester, and post-professional development evaluation surveys completed by professional development participants. Specific anticipated short-term outcomes for teachers include:

- 10% increase in classroom MTs who receive additional compensation, training, certifications, and/or advanced degrees
- 5% increase in teachers receiving advanced degrees or National Board certification
- 5% reduction in annual teacher turnover, and a 0% attrition rate for MTs during the 3-year grant (not including retirements)

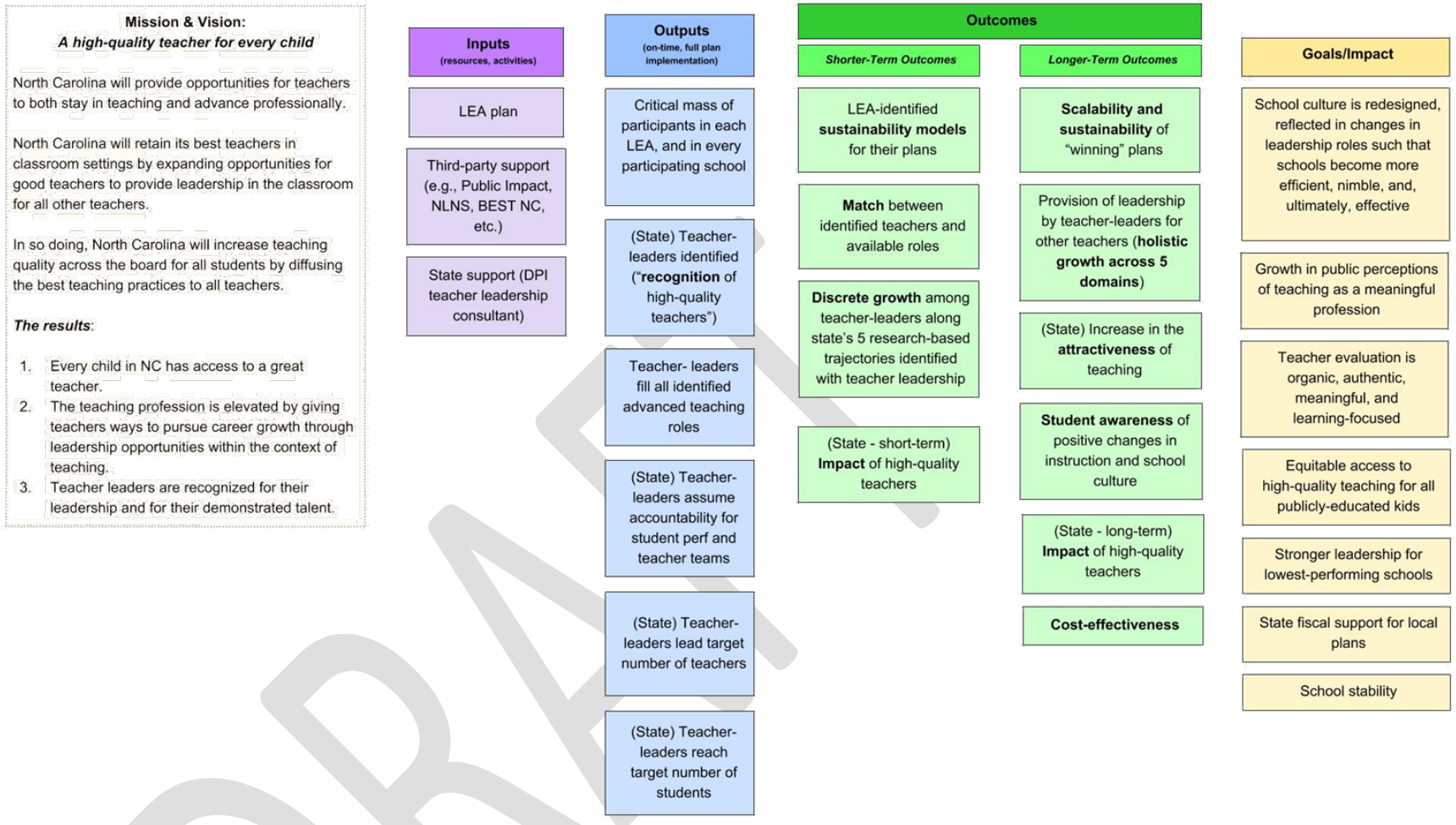
[45] The Larry Bell Strategy (https://www.larry-bell.com/) provides instructional strategies to promote high expectations for struggling learners.
[46] WCS originally intended to support the initiative with both state and federal Title II funds, but Title II funding was cut prior to implementation.

Even though there are only one or two MTs at every school, WCS anticipates measurable impact on all students' growth, since all teachers have access to the coaching and professional development provided by the MTs. The initiative's key measurable longer-term student outcome target is a 10% decrease over the three-year period across all grade levels in the proportion of students who score at Level I on the EOG/EOC in reading and math. As noted above, while WCS anticipates seeing these improvements district-wide, the district expects initial impacts in MT classrooms during Years One and Two, with measurable impacts for all students by Year Three.

Table C6. WCS Supplemental Pay Table

Position Title	Salary Differential
Master Teachers	$2,000

State-Level


Mission & Vision:
A high-quality teacher for every child
North Carolina will provide opportunities for teachers to both stay in teaching and advance professionally.
North Carolina will retain its best teachers in classroom settings by expanding opportunities for good teachers to provide leadership in the classroom for all other teachers.
In so doing, North Carolina will increase teaching quality across the board for all students by diffusing the best teaching practices to all teachers.
The results:
1. Every child in NC has access to a great teacher.
2. The teaching profession is elevated by giving teachers ways to pursue career growth through leadership opportunities within the context of teaching.
3. Teacher leaders are recognized for their leadership and for their demonstrated talent.
Inputs (resources, activities)
LEA plan
Third-party support (e.g., Public Impact, NLNS, BEST NC, etc.)
State support (DPI teacher leadership consultant)
Outputs (on-time, full plan implementation)
Critical mass of participants in each LEA, and in every participating school
(State) Teacher-leaders identified ("recognition of high-quality teachers")
Teacher- leaders fill all identified advanced teaching roles
(State) Teacher-leaders assume accountability for student perf and teacher teams
(State) Teacher-leaders lead target number of teachers
(State) Teacher-leaders reach target number of students
Outcomes
Shorter-Term Outcomes
LEA-identified sustainability models for their plans
Match between identified teachers and available roles
Discrete growth among teacher-leaders along state's 5 research-based trajectories identified with teacher leadership
(State - short-term) Impact of high-quality teachers
Longer-Term Outcomes
Scalability and sustainability of "winning" plans
Provision of leadership by teacher-leaders for other teachers (holistic growth across 5 domains)
(State) Increase in the attractiveness of teaching
Student awareness of positive changes in instruction and school culture
(State - long-term) Impact of high-quality teachers
Cost-effectiveness
Goals/Impact
School culture is redesigned, reflected in changes in leadership roles such that schools become more efficient, nimble, and, ultimately, effective
Growth in public perceptions of teaching as a meaningful profession
Teacher evaluation is organic, authentic, meaningful, and learning-focused
Equitable access to high-quality teaching for all publicly-educated kids
Stronger leadership for lowest-performing schools
State fiscal support for local plans
School stability

Appendix D. Raw Survey Results

Survey Response Key:

SD: Strongly Disagree
D: Disagree
N: Neither Agree nor Disagree
A: Agree
SA: Strongly Agree

Notes:

To protect privacy, data are not reported for respondent groups with five or fewer respondents (marked "---" in data columns and "*" in the count [*n*] column). Data for respondent groups with five or fewer respondents are included in multi-LEA summary rows.

No responses were received from teachers, administrators, or students in Washington County Schools.

All Survey-Takers

Q1 Since the implementation of the program the quality of non-lead teachers' instruction in our school has improved. / Since I began work with a lead teacher in my school, the quality of my classroom instruction has improved. / I believe the quality of classroom instruction has improved among the teachers I support in my role.

Year 2 Results	*SD*	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
Administrators	0%	0%	17%	35%	48%	0%	17%	83%	*23*
Other Teachers	2%	4%	14%	48%	32%	6%	14%	80%	*126*
Lead Teachers	0%	0%	3%	51%	46%	0%	3%	97%	*99*

Change from Year 1	*SD*	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*
Administrators		-9%	-10%	-6%	***+25%***	-9%	-10%	***+19%***
Other Teachers	-1%	-6%	-8%	+3%	***+13%***	-7%	-8%	***+16%***
Lead Teachers	-1%	-1%	-8%	-7%	***+17%***	-2%	-8%	***+10%***

Q2 The program allows me to identify high-quality classroom teacher leaders. / All of the teachers in leadership roles at my school are high-quality classroom teachers. / All of the teachers in leadership roles like mine at my school are high-quality classroom teachers.

Year 2 Results	*SD*	*D*	*N*	*A*	*SA*	*No others in roles like mine*	*SD + D*	*N*	*A + SA*	*n*
Administrators	0%	0%	5%	27%	68%		0%	5%	96%	*22*
Other Teachers	0%	5%	13%	41%	42%		5%	13%	82%	*135*
Lead Teachers	2%	1%	3%	20%	65%	8%	3%	3%	86%	*98*

Change from Year 1	*SD*	*D*	*N*	*A*	*SA*		SD + D	*N*	*A + SA*	
Administrators			-8%	-12%	***+20%***			-8%	+9%	
Other Teachers	-1%	+1%	-1%		+2%			-1%	+1%	
Lead Teachers	+1%		+1%	-5%	+1%	+1%	+1%	+1%	-3%	

Q3 I believe the program provides adequate support for beginning classroom teachers. / I believe the program provides adequate support to beginning teachers.

Year 2 Results	*SD*	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
Other Teachers	3%	4%	15%	47%	31%	7%	15%	78%	*126*
Lead Teachers	0%	3%	13%	34%	37%	3%	15%	71%	*97*

Change from Year 1	*SD*	*D*	*N*	*A*	*SA*	SD + D	*N*	*A + SA*	
Other Teachers		***-11%***	-6%	+4%	***+13%***	***-11%***	-6%	***+17%***	
Lead Teachers		-4%	-10%	***-24%***	***+25%***	-4%	-10%	+1%	

Q4 The aspect of the lead teacher roles at my school that most appeal to me is… / The aspect of my new role that most makes working at my school more appealing to me is…

Year 2 Results	*Providing PD*	*Receiving supplemental pay*	*Providing support for classroom teachers*	*Mentoring early-career teachers*	*Assuming more leadership responsibi-lities*	*n*
Other Teachers	10%	22%	39%	10%	19%	*134*
Lead Teachers	6%	39%	37%	2%	16%	*98*

Change from Year 1	*Providing PD*	*Receiving supplemental pay*	*Providing support for classroom teachers*	*Mentoring early-career teachers*	*Assuming more leadership responsibi-lities*
Other Teachers	+3%	-1%	-4%	-4%	+6%
Lead Teachers	-2%	***+10%***	+5%	-4%	-9%

Lead Teachers

Q1 I believe the quality of classroom instruction has improved among the teachers I support in my role.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	0%	0%	3%	51%	46%	0%	3%	97%	*98*
CHCCS	0%	0%	0%	47%	53%	0%	0%	100%	*15*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	0%	0%	4%	55%	41%	0%	4%	96%	*74*
VCS	---	---	---	---	---	---	---	---	*

Q2 All of the teachers in leadership roles like mine at my school are high---quality classroom teachers.

	SD	*D*	*N*	*A*	*SA*	*No others in roles like mine*	*SD + D*	*N*	*A + SA*	*n*
All	2%	1%	3%	20%	65%	8%	3%	3%	86%	*98*
CHCCS	0%	0%	7%	27%	60%	7%	0%	7%	87%	*15*
CMS	---	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	---	*
PCS	3%	1%	3%	20%	66%	7%	4%	3%	87%	*74*
VCS	---	---	---	---	---	---	---	---	---	*

Q3 I believe the program provides adequate support to beginning teachers.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	0%	3%	13%	34%	37%	3%	13%	71%	*97*
CHCCS	0%	7%	13%	53%	20%	7%	13%	73%	*15*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	0%	3%	15%	32%	38%	3%	15%	70%	*73*
VCS	---	---	---	---	---	---	---	---	*

Q4 The aspect of my new role that most makes working at my school more appealing to me is…

	Providing PD	*Receiving supplemental pay*	*Providing support for classroom teachers*	*Mentoring early-career teachers*	*Assuming more leadership responsibi-ities*	*n*
All	6%	39%	37%	2%	16%	*98*
CHCCS	27%	7%	47%	7%	13%	*15*
CMS	---	---	---	---	---	*
ECPS	---	---	---	---	---	*
PCS	3%	49%	30%	1%	18%	*74*
VCS	---	---	---	---	---	*

Q5 Since I began my role as a lead, I believe the quality of my classroom instruction has improved.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	0%	0%	9%	46%	46%	0%	9%	91%	*99*
CHCCS	0%	0%	13%	33%	53%	0%	13%	87%	*15*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	0%	0%	8%	51%	41%	0%	8%	92%	*75*
VCS	---	---	---	---	---	---	---	---	*

Q6 Since I began my role as a lead, I believe that my ability to lead other teachers has improved.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	0%	0%	0%	26%	74%	0%	0%	100%	*99*
CHCCS	0%	0%	0%	33%	67%	0%	0%	100%	*15*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	0%	0%	0%	27%	73%	0%	0%	100%	*75*
VCS	---	---	---	---	---	---	---	---	*

Q7 Since I began my role as a lead, I have been able to increase the amount of support provided to beginning classroom teachers at my school.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	1%	4%	14%	44%	36%	5%	14%	81%	*99*
CHCCS	0%	0%	13%	53%	33%	0%	13%	87%	*15*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	1%	5%	16%	45%	32%	7%	16%	77%	*75*
VCS	---	---	---	---	---	---	---	---	*

Q8 I am more likely to recommend teaching as a profession, as a result of my experience in my advanced teaching role.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	1%	6%	15%	46%	32%	7%	15%	78%	*98*
CHCCS	7%	13%	20%	40%	20%	20%	20%	60%	*15*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	0%	5%	14%	49%	32%	5%	14%	81%	*74*
VCS	---	---	---	---	---	---	---	---	*

Q9 I believe that the supplemental pay provided for my advanced teaching role is adequate.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	0%	3%	5%	51%	41%	3%	5%	92%	*98*
CHCCS	0%	20%	20%	47%	13%	20%	20%	60%	*15*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	0%	0%	3%	53%	45%	0%	3%	97%	*74*
VCS	---	---	---	---	---	3%	5%	92%	*98*

Q10 I feel valued in my advanced teaching role.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	0%	5%	5%	42%	48%	5%	5%	90%	*98*
CHCCS	0%	7%	13%	47%	33%	7%	13%	80%	*15*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	0%	5%	4%	41%	50%	5%	4%	91%	*74*
VCS	---	---	---	---	---	---	---	---	*

Q11 I believe that the responsibilities of my advanced position recognize the quality of my teaching.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	0%	1%	3%	42%	54%	1%	3%	96%	*98*
CHCCS	0%	7%	7%	47%	40%	7%	7%	87%	*15*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	0%	0%	3%	42%	55%	0%	3%	97%	*74*
VCS	---	---	---	---	---	---	---	---	*

Q12 Working in an advanced teaching position with supplemental pay has increased the likelihood that I'll remain teaching in the classroom.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	0%	4%	10%	27%	59%	4%	10%	86%	*97*
CHCCS	0%	13%	40%	20%	27%	13%	40%	47%	*15*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	0%	1%	6%	26%	67%	1%	6%	93%	*73*
VCS	---	---	---	---	---	---	---	---	*

Q13 Rank these aspects of the program from most valuable to least valuable to your professional practice.

Rank All	*PD*	*Supplemental pay*	*Opp. to support classroom teachers*	*Opp. to mentor early-career teachers*	*Leadership responsibi-lities*	*n*
First	13%	33%	28%	4%	22%	*97*
Second	24%	35%	14%	12%	14%	*97*
Third	22%	11%	28%	12%	27%	*97*
Fourth	22%	11%	22%	22%	24%	*97*
Fifth	20%	9%	8%	50%	13%	*97*
CHCCS						
First	20%	7%	27%	13%	33%	*15*
Second	20%	27%	7%	27%	20%	*15*
Third	20%	20%	47%	13%	0%	*15*
Fourth	27%	20%	7%	13%	33%	*15*
Fifth	13%	27%	13%	33%	13%	*15*
PCS						
First	12%	40%	25%	3%	21%	*73*
Second	27%	36%	15%	7%	15%	*73*
Third	23%	11%	27%	11%	27%	*73*
Fourth	19%	10%	25%	25%	22%	*73*
Fifth	18%	4%	8%	55%	15%	*73*

Note: Five or fewer respondents in CMS, ECPS and VCS

Teacher Colleagues and Other Teachers

Q1 Since I began work with a lead teacher in my school, the quality of my classroom instruction has improved.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	2%	4%	14%	48%	32%	6%	14%	80%	*126*
CHCCS	7%	13%	20%	40%	20%	20%	20%	60%	*15*
CMS	---	---	---	---	---	---	---	---	*
ECPS	6%	11%	33%	28%	22%	17%	33%	50%	*18*
PCS	0%	1%	9%	54%	36%	1%	9%	90%	*87*
VCS	0%	0%	17%	50%	33%	0%	17%	83%	*6*

Q2 The aspect of the lead teacher roles at my school that most appeal to me is…

	Providing PD	*Receiving supplemental pay*	*Providing support for classroom teachers*	*Mentoring early-career teachers*	*Assuming more leadership responsibi-lities*	*n*
All	10%	22%	39%	10%	19%	*134*
CHCCS	38%	31%	31%	0%	0%	*16*
CMS	---	---	---	---	---	*
ECPS	9%	26%	26%	26%	13%	*23*
PCS	4%	21%	42%	8%	26%	*86*
VCS	22%	11%	56%	0%	11%	*9*

Q3 All of the teachers in leadership roles at my school are high-quality classroom teachers.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	0%	5%	13%	41%	42%	5%	13%	82%	*135*
CHCCS	0%	12%	35%	29%	24%	12%	35%	53%	*17*
CMS	---	---	---	---	---	---	---	---	*
ECPS	0%	0%	30%	22%	48%	0%	30%	70%	*23*
PCS	0%	6%	5%	46%	44%	6%	5%	90%	*87*
VCS	0%	0%	0%	63%	38%	0%	0%	100%	*8*

Q4 I believe the program provides adequate support for beginning classroom teachers.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	3%	4%	15%	47%	31%	7%	15%	78%	*126*
CHCCS	17%	0%	17%	42%	25%	17%	17%	67%	*12*
CMS	---	---	---	---	---	---	---	---	*
ECPS	5%	14%	9%	36%	36%	18%	9%	73%	*22*
PCS	1%	2%	17%	50%	30%	4%	17%	80%	*84*
VCS	0%	0%	13%	50%	38%	0%	13%	88%	*8*

Q5 I believe my lead teacher's leadership has been helpful to me.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	1%	4%	9%	44%	42%	5%	9%	86%	*127*
CHCCS	6%	19%	25%	31%	19%	25%	25%	50%	*16*
CMS	---	---	---	---	---	---	---	---	*
ECPS	0%	11%	28%	39%	22%	11%	28%	61%	*18*
PCS	0%	0%	2%	48%	49%	0%	2%	98%	*87*
VCS	0%	0%	17%	33%	50%	0%	17%	83%	*6*

Q6 I value the professional expertise of the lead teachers in my school.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	1%	3%	8%	42%	46%	4%	8%	88%	*135*
CHCCS	0%	12%	24%	35%	29%	12%	24%	65%	*17*
CMS	---	---	---	---	---	---	---	---	*
ECPS	4%	4%	26%	26%	39%	9%	26%	65%	*23*
PCS	0%	1%	1%	47%	51%	1%	1%	98%	*87*
VCS	0%	0%	0%	50%	50%	0%	0%	100%	*8*

Q7 The opportunity to become a lead teacher at my school influences my decision to continue teaching.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	6%	22%	30%	27%	15%	28%	30%	42%	*131*
CHCCS	13%	38%	25%	19%	6%	50%	25%	25%	*16*
CMS	---	---	---	---	---	---	---	---	*
ECPS	18%	23%	23%	32%	5%	41%	23%	36%	*22*
PCS	2%	17%	34%	27%	20%	19%	34%	47%	*85*
VCS	0%	50%	13%	25%	13%	50%	13%	38%	*8*

Q8 The opportunity to receive supplemental pay as a lead at my school influences my decision to continue teaching.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	5%	18%	16%	36%	26%	23%	16%	62%	*129*
CHCCS	13%	13%	25%	31%	19%	25%	25%	50%	*16*
CMS	---	---	---	---	---	---	---	---	*
ECPS	9%	23%	9%	46%	14%	32%	9%	59%	*22*
PCS	2%	16%	15%	35%	33%	18%	15%	67%	*83*
VCS	0%	38%	25%	25%	13%	38%	25%	38%	*8*

Q9 The opportunity to collaborate with lead teachers at my school influences my decision to continue teaching.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	2%	18%	17%	36%	28%	20%	17%	63%	*131*
CHCCS	6%	25%	25%	31%	13%	31%	25%	44%	*16*
CMS	---	---	---	---	---	---	---	---	*
ECPS	0%	18%	27%	27%	27%	18%	27%	55%	*22*
PCS	1%	15%	12%	41%	31%	17%	12%	72%	*85*
VCS	0%	38%	25%	13%	25%	38%	25%	38%	*8*

Q10 How often do you work with a lead teacher?

	Never	*Once/Twice*	*Quarterly*	*Monthly*	*Weekly*	*Daily*	*n*
All	7%	6%	2%	18%	38%	29%	*137*
CHCCS	28%	11%	6%	33%	11%	11%	*18*
CMS	---	---	---	---	---	---	*
ECPS	17%	13%	4%	4%	35%	26%	*23*
PCS	0%	0%	1%	21%	47%	31%	*87*
VCS	11%	33%	0%	0%	11%	44%	*9*

Q11 Rank these aspects of your district's advanced teaching roles program from most to least valuable to your professional practice.

Rank All	*PD*	*Support provided for my classroom instruction*	*Mentoring provided to early-career teachers*	*Additional responsibility taken on by lead teacher*	*n*
First	23%	53%	11%	12%	*124*
Second	33%	25%	25%	17%	*124*
Third	27%	11%	40%	22%	*124*
Fourth	17%	11%	23%	49%	*124*
CHCCS					
First	44%	31%	19%	6%	*16*
Second	44%	31%	19%	6%	*16*
Third	6%	13%	56%	25%	*16*
Fourth	6%	25%	6%	63%	*16*
ECPS	*PD*				
First	21%	37%	16%	26%	*19*
Second	21%	32%	32%	16%	*19*
Third	32%	21%	21%	26%	*19*
Fourth	26%	11%	32%	32%	*19*
PCS					
First	21%	60%	8%	11%	*83*
Second	34%	23%	24%	19%	*83*
Third	29%	8%	43%	19%	*83*
Fourth	17%	8%	24%	51%	*83*
VCS					
First	17%	67%	17%	0%	*6*
Second	33%	17%	33%	17%	*6*
Third	33%	17%	17%	33%	*6*
Fourth	17%	0%	33%	50%	*6*

Note: Five or fewer respondents in CMS.

Administrators

Q1 Since the implementation of the program the quality of non-lead teachers' instruction in our school has improved.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	0%	0%	17%	35%	48%	0%	17%	83%	*23*
CHCCS	---	---	---	---	---	---	---	---	*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	---	---	---	---	---	---	---	---	*
VCS	---	---	---	---	---	---	---	---	*

Q2 The program allows me to identify high-quality classroom teacher leaders.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	0%	0%	5%	27%	68%	0%	5%	96%	*22*
CHCCS	---	---	---	---	---	---	---	---	*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	---	---	---	---	---	---	---	---	*
VCS	---	---	---	---	---	---	---	---	*

Q3 I believe the Advanced Teaching Roles program is having a positive impact on the overall retention of teachers at my school or district.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	0%	5%	0%	18%	77%	5%	0%	96%	*22*
CHCCS	---	---	---	---	---	---	---	---	*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	---	---	---	---	---	---	---	---	*
VCS	---	---	---	---	---	---	---	---	*

Q4 Since the implementation of the program, the quality of the leadership provided by our school's lead teachers has improved.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	0%	0%	9%	17%	74%	0%	9%	91%	*23*
CHCCS	---	---	---	---	---	---	---	---	*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	---	---	---	---	---	---	---	---	*
VCS	---	---	---	---	---	---	---	---	*

Q5 Since the implementation of the program, lead teachers have assumed more leadership roles or responsibilities.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	0%	4%	4%	30%	61%	4%	4%	91%	*23*
CHCCS	---	---	---	---	---	---	---	---	*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	---	---	---	---	---	---	---	---	*
VCS	---	---	---	---	---	---	---	---	*

Q6 The most valuable aspect of the program for my teachers is…

Rank	*PD*	*Support provided for classroom instruction*	*Mentoring provided to early-career teachers*	*Additional responsibility taken on by lead teacher*	*The supplemental pay for lead teachers*	*n*
First	22%	39%	22%	6%	11%	*18*
Second	33%	28%	22%	17%	0%	*18*
Third	22%	28%	39%	11%	0%	*18*
Fourth	22%	6%	17%	33%	22%	*18*
Fifth	0%	0%	0%	33%	67%	*18*

Note: *n* too low to report at LEA level; five or fewer respondents in CHCCS, CMS, ECPS, and VCS.

Students

Q1 Overall, I think my teachers understand the best way to teach me.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	2%	9%	17%	51%	21%	11%	17%	72%	*1150*
CHCCS	1%	16%	21%	54%	8%	17%	21%	62%	*223*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	3%	7%	16%	50%	25%	10%	16%	75%	*923*
VCS	---	---	---	---	---	---	---	---	*

Q2 I have learned a lot from my teachers this year.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	1%	3%	10%	51%	35%	4%	10%	86%	*1203*
CHCCS	1%	4%	12%	58%	24%	5%	12%	82%	*226*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	1%	3%	9%	49%	38%	4%	9%	87%	*973*
VCS	---	---	---	---	---	---	---	---	*

Q3 I believe I have learned more from my teachers this year than I did last year.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	4%	11%	22%	31%	32%	16%	22%	62%	*1116*
CHCCS	2%	15%	23%	36%	23%	18%	23%	59%	*208*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	5%	10%	22%	29%	34%	15%	22%	63%	*904*
VCS	---	---	---	---	---	---	---	---	*

Q4 I believe my teachers are ready to teach every day.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	4%	13%	17%	43%	24%	17%	17%	66%	*1132*
CHCCS	1%	17%	18%	47%	17%	18%	18%	64%	*217*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	4%	13%	17%	43%	24%	17%	17%	66%	*912*
VCS	---	---	---	---	---	---	---	---	*

Q5 My teachers enjoy their jobs.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	6%	8%	25%	41%	21%	14%	25%	61%	*985*
CHCCS	3%	9%	25%	51%	12%	12%	25%	63%	*206*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	7%	8%	25%	38%	23%	14%	25%	61%	*775*
VCS	---	---	---	---	---	---	---	---	*

Q6 My teachers this year seem to enjoy their jobs more than my teachers did last year.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	8%	18%	39%	21%	15%	25%	39%	36%	*990*
CHCCS	3%	21%	45%	22%	9%	24%	45%	31%	*198*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	9%	17%	37%	21%	17%	26%	37%	38%	*789*
VCS	---	---	---	---	---	---	---	---	*

Q7 My teachers are respected and valued by their students.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	9%	16%	24%	36%	15%	25%	24%	51%	*1132*
CHCCS	5%	18%	25%	41%	12%	23%	25%	53%	*222*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	10%	15%	24%	35%	16%	25%	24%	51%	*907*
VCS	---	---	---	---	---	---	---	---	*

Q8 I am considering teaching as a career.

	SD	*D*	*N*	*A*	*SA*	*SD + D*	*N*	*A + SA*	*n*
All	59%	18%	8%	8%	7%	77%	8%	14%	*1118*
CHCCS	50%	27%	9%	8%	6%	77%	9%	14%	*220*
CMS	---	---	---	---	---	---	---	---	*
ECPS	---	---	---	---	---	---	---	---	*
PCS	62%	16%	8%	8%	7%	78%	8%	14%	*895*
VCS	---	---	---	---	---	---	---	---	*

Note: Five or fewer respondents in CMS, ECPS, and VCS.

Appendix E. Technical Appendix

Quantitative Analysis Approach

As detailed in previous reports, at the start of the evaluation, the evaluation team hosted a quantitative analysis summit with independent experts to discuss reasonable quantitative options for this evaluation, given data and implementation challenges as well as the limited evaluation budget. As a result of that consultation, we developed a revised and expanded preferred approach to the quantitative analysis component of the evaluation, described below.

A Combined-Data Approach

Summit participants recommended ***cross-LEA combined-data analyses*** as the primary approach to analysis. In other words, all participating schools in all six pilot LEAs are included in a single "treatment"[47] group, with outcomes reflecting changes potentially attributable to *the presence of an ATR initiative* (regardless of each pilot's specific components). This type of analysis does shift the focus away from estimating the impact of LEA-specific implementations, but grouping all participating schools together allows for more reliable *overall* impact estimates.

To partially compensate for the shift in focus away from individual pilot impacts, we also conducted the same analyses on data for a smaller "treatment" group that includes the four LEAs with the most similar programs (Charlotte-Mecklenburg, Edgecombe, Vance, and Pitt), with outcomes reflecting changes potentially attributable to *the presence of an ATR initiative with the components common to all four of these LEA pilots*. Doing so may provide additional insights about the impacts of one general approach to implementation when it is implemented in several different contexts.

Readers of previous reports may recall that we had considered conducting a third set of analyses that included only participating and matched non-participating schools in Pitt County (the only large LEA in which only some schools participate and no other schools are exposed to similar initiatives[48]), with outcomes reflecting changes *more strongly attributable to the presence of a specific pilot iteration*. Because the original Pitt County cohort was large (24 schools in 2017-18), however, matching to the remaining schools would have been difficult (with only a few schools at each level [elementary, middle, high] to match, the likelihood of finding enough strong matches was very low). Also, because the Pitt initiative expanded the following year (and likely will continue to expand), the analyses would have been limited to one-year comparisons only.

A School-Level Lens

Summit participants also recommended focusing on ***school-level rather than individual teacher- and student-level outcomes***, for two reasons: 1) the wide array of teacher roles makes analyses at the teacher level less reliable; and 2) the number of teachers impacted in several of the

[47] "Treatment" as used in this evaluation means involvement in one of the pilot programs.

[48] Charlotte-Mecklenburg's long history with differentiated pay and strategic staffing models make it difficult to find appropriate comparison schools within the LEA that have not been impacted by similar models in the recent past.

participating LEAs (and thus the number of students) is very low. In keeping with the idea of whole-school cultural change as the most likely preliminary outcome of the initiative (**Appendix F**), this approach emphasizes the impact of the presence of an LEA's plan on an entire school, rather than its impact on an individual teacher's or student's performance.

A Focus on Teachers and Teaching as a Career

Finally, summit participants recommended a focus on ***teachers and the teaching career***, rather than on short-term student outcomes, which—as suggested by the Theory of Change model (**Appendix F**) and by the relatively short length of the pilots—are not likely to change significantly as a result of the pilots. For the most part, we have relied on initiative-neutral EVAAS value-added scores to control for some of the analytic challenges posed by each LEA's different approaches to selecting teachers for the advanced roles. We also have analyzed school-level changes in student outcomes, but we continue to caution against over-interpretation of the results: Changes to school culture that eventually contribute to changes in student achievement outcomes may not be fully realized by the end of the evaluation window.[49]

To gauge the overall appeal of career ladder programs to young professionals, for the final report, the evaluation team also plans to ask teacher licensure candidates in colleges of education to review short descriptions of each program (with a focus on role/position descriptions and salary/bonus schedules) to assess their relative appeal.

Interrupted Time Series

Randomized controlled trials—analyses in which people or schools to be impacted by a new policy are randomly chosen from the entire population of people or schools that potentially could be impacted—are the gold standard for evaluating educational interventions, but often they are not possible or practical. The LEAs implementing ATR pilots were not randomly chosen, nor were the people or schools within those LEAs that are directly impacted by the pilots. In addition, each LEA's pilot is unique (similarities in Table C1, above, notwithstanding). Both factors prevent the evaluation team from conducting *causal* analyses, so the evaluation team needed to identify a rigorous non-experimental option that could produce the best approximations of causality (Somers et al. 2013).

If implemented well, the Interrupted Time Series (ITS) approach can meet this need and can be especially useful for determining school-level impacts of an intervention when data for individuals may not be available or expedient (Linden 2015; Somers et al. 2013). In general, an ITS analysis helps us identify not only immediate effects of a policy on outcomes of interest (for instance, a statistically notable change soon after the point in time when a policy goes into effect) but also effects over time (for instance, a statistically notable change in the *progression* or *evolution* of an outcome of interest, as measured at multiple points in time after the policy goes into effect).[50] In other words, it helps detect both a change in an outcome that is out of the

[49] We continue to note, however, that the North Carolina General Assembly's extension of the pilot program from three to eight years (Session Law 2018-5, Section 7.9) makes such estimations not only more possible but also more valid, should an evaluation of student outcomes be conducted for years four through eight of the current pilots.
[50] Contrast this with the Difference-in-Differences model used for the current report, which only can detect differences in single-point-in-time outcomes between the affected schools and the comparison schools. Our

ordinary, relative to all of the outcome measures that preceded it, as well as a change in the *growth rate* (or decline rate) of the outcome across time points as a policy matures (Linden 2015; Somers et al. 2013).

Therefore, ITS appeared to be a good analytic match for supporting our efforts to learn more about the effects of the introduction of ATR into school settings. ITS cannot be applied in all situations, however, so the team first vetted its suitability for the ATR evaluation against two criteria: model fit and historical context.

Model Fit

A key requirement for using ITS for evaluation of an education intervention is that there are ***at least four measures*** of the outcomes of interest available from the time before the introduction of the intervention (Somers et al. 2013). The four pre-intervention data points help to establish not only the natural "maturation" pattern of the outcomes of interest before the introduction of the intervention (and thus provide some insight into what future outcomes might have been, had the initiative not been introduced; Halberg et a. 2018), but also help to establish how those maturation rates compare to the same outcomes for potential comparison schools.

In the case of the ATR pilots, there are at least four measures available for even the newest of the outcome measures of interest (the school-level Performance Grade Score, first calculated for the 2013-14 school year and available every year after that). While other outcomes of interest (e.g., EoG and EoC scores, teacher attrition, etc.) are available for more than four years, the older those data are, the more likely they are to have been impacted by any of several historical statewide initiatives or events (e.g., the Great Recession and its impact on teacher pay, the statewide set of nested initiatives that made up the state's Race to the Top efforts, changes in EoG and/or EoC scales, etc.), so all analyses, regardless of the outcome being measured, will use data from the 2013-14 school year forward.

Historical Context

Another concern when considering use of an ITS approach is the possibility that unrelated historical changes (e.g., a change in curriculum) may impact outcomes for some of the schools being studied but not for other schools in the sample (Hallberg et al. 2018). While not eliminating this threat entirely, North Carolina's centralized approach to education delivery (in which all LEAs are subject to changes in education policy at the same time statewide) helps to reduce this possibility.

There is one quantitative vetting procedure typically undertaken to address the possibility that unrelated historical changes (e.g., a change in curriculum) may impact only a subset of the schools (treatment and comparison) being studied (Hallberg et al. 2018), but the team will not be able to conduct it. Normally, to test for the robustness of the analysis of post-intervention outcomes, an evaluator first analyzes data from the pre-intervention time period alone to determine whether any meaningful changes detected after the start of the intervention already were beginning to take place before the intervention began (Linden 2015). This analysis is done

preferred approach also differs from the approach used in the Backes and Hansen (2018) study, as we plan to rely more heavily on identifying changes in longer-term trends for some key variables.

by comparing outcome measures for the first half of the pre-intervention data with outcome measures for the second half of the pre-intervention data—essentially, conducting an ITS for the second half of the pre-intervention data, as if it were post-intervention data. Unfortunately, because there are only four data points available for one of the outcomes of interest (School Performance Grade Score) before the introduction of the pilots (2013-14 [the first year the Performance Grade Score was calculated)—meaning there will be at most only two or three artificial "pre-intervention" data points—it is not feasible to run a reliable test of changes over the course of the pre-intervention timeline, for the same reasons the actual ITS could not be run with fewer than four actual pre-intervention outcome data points.

ITS Modeling Options

There are four main ITS model options, each with strengths and cautions (Hallberg et al. 2018):

1. The simplest is the *baseline mean* model, which assumes that differences between treatment and comparison school outcomes are fixed over time (that is, that they change at the same rate). This model is only appropriate if the pre-intervention data suggest that changes in the outcomes of interest are parallel for treatment and comparison schools.
2. The *baseline linear trend* model does not require pre-intervention changes to be parallel, but does assume that pre-intervention changes for treatment and comparison schools alike are still linear (constant), and that pre-intervention changes within each group (treatment schools and comparison schools) are the same.
3. The *baseline nonlinear trend* model does not assume (per its name) that pre-intervention trends are constant, but, in our case, requires the assumption that our four pre-intervention years of data provide enough accuracy to reflect the true nonlinearity of the pre-intervention trend.
4. The *school and year fixed effects* model does not model the pre-intervention trend at all, instead measuring only the variations across time within each school. Like the baseline mean model, however, it assumes parallel pre-intervention changes over time between treatment and comparison schools.

Our final modeling decision will be based on an analysis of pre-intervention trends in all of our outcomes of interest for both treatment and comparison schools. Regardless of the model, Somers et al. (2013) recommend a two-level multilevel ITS model, with the first level being school year.

Effect sizes can be calculated using the standard deviation of average school performance, but these effect sizes are not the same as student- or teacher-level effect sizes, and often are smaller. If needed, effect sizes comparable to those for individual-level models can be estimated by dividing the school-level standard deviation by the square root of the intra-class correlation (Hallberg et al. 2018).

ITS versus Difference-in-Differences

For this report, the evaluation team had enough pre-intervention data available for an ITS, but not enough post-intervention data available (one year only for five of the six participating LEAs). Without a series of post-intervention measurements, a Difference-in-Differences model—which analyses changes across a single period of time (in the present case, differences between the year before implementation and the year after implementation) was used instead, but at a cost of some level of validity with potentially more biased impact estimates (Somers et al. 2013), since only one pre- and post-intervention measurement prevents identification of any pre- and post-intervention *trends*.

This is an important distinction, as, without the additional trend analyses, a difference in outcomes alone might be attributed to the program being studied, when in actuality it may have been just an artifact of the natural progression of the outcome measure over time even without the presence of the initiative. In addition, inclusion of measurement of a pre-intervention trend better handles identification of meaningful differences over time, not only by providing a more accurate projection of trends without intervention but also by being more mathematically honest about declining accuracy in longer-term educational outcome projections due to the mounting plethora of background "noise" brought on by constant shifts in other parts of the education environment (Somers et al. 2013).

As a result, we have been careful to include multiple caveats alongside the Difference-in-Differences analysis results reported in the main text of this document.

School Matching

An important key to a strong non-experimental analysis design is identification of a comparison group of non-impacted entities (in educational research, usually schools or individuals) that most closely resembles the group of impacted entities, to reduce what is known as selection bias. Selection bias occurs when the impacted entities take part in the intervention for one or more (often unseen) shared reasons that may themselves be the cause of differences between outcomes for that group and outcomes for the comparison group—not the cause of participation in the initiative being studied. In other words, "[d]ifferences in outcomes between the treatment and comparison group may be due to pre-existing or unobserved differences between the two groups, rather than to the effect of the program being evaluated" (Somers et al. 2013, p. 1).

With only about 2,600 schools in North Carolina, and with the constant background noise of multiple, overlapping, and sometimes conflicting initiatives in operation in any of them at any given time, it can be challenging to identify a reasonable comparison group of schools to help strengthen the analyses of outcomes for the subset of schools impacted by a given policy—in this case, impacted by the introduction of the ATR pilot programs. In addition, in North Carolina there is the added challenge of identifying whether a given school—whether an ATR school or a potential comparison school—and its staff have been exposed to similar programs in the recent past. For example, during the Race to the Top period alone (2010-2014), over 70 LEAs across the state (including five of the six participating in the ATR pilot) experimented with some type of LEA-level or individual school-level strategic staffing initiative (Maser et al. 2014), meaning that in many cases, either the introduction of the ATR pilot is not a new concept or the impacts

of previous initiatives in potential comparison schools still lingers. As a result, while we have taken great care in our selection of comparison schools, these challenges add to our ongoing need to present all conclusions from our analyses with a strong word of caution.

To compensate for some of these challenges, Linden (2015), Rubin (2001), and others recommend using a statistical process known as ***propensity score matching*** (PSM) for identifying members of the comparison group. Many researchers suggest that the specific PSM strategy—and there are several—matters much less than does the choice of variables on which schools are matched (see, for instance, Hallberg et al. 2018). Based on the findings of Somers et al. (2013), since we have a large candidate pool of schools relative to the treated schools, and since we have more than two years of pre-intervention test data, we initially used a ***radius matching*** strategy to identify our matches. This strategy matched each treatment school to several schools within a given propensity score range. After identification of the radius matches, we selected the closest matches that also did not exhibit any of the other potentially confounding characteristics described above (e.g., implementation of a similar staffing program at any point over the four pre-intervention years, etc.).

General Matching Considerations

ITS can be applied even if there is no comparison group, but a defensible comparison group is preferred, as it enhances internal validity by controlling for at least some otherwise-confounding omitted variables (Linden 2015; Halberg et a. 2018). Difference-in-Differences, by definition (as it analyses the difference in the pre- and post-values for treated and comparison groups), requires matching.

Glazerman, Levy, and Meyers (2003), Cook, Shadish, and Wong (2008), and Steiner, Cook, Shadish, and Clark (2010) identify several strategies for creating stronger comparison groups, including: gathering enough knowledge of potential comparison group members to identify those with motivations or circumstances similar to those of treatment group members; considering geographic proximity of comparison and treatment groups (to reduce bias from unobserved, place-based factors); and verifying the availability of pre-tests or pre-measures of the outcomes of interest for use in establishing similarities between the two groups ahead of the introduction of the intervention. In the case of the ATR pilots, the evaluation team was able to address the second and third strategies, but not the first. The best approximation for similar motivation would be to prioritize schools from the six LEAs that applied for the ATR initiative but were not chosen;[51] however, limiting the match pool to only those six LEAs significantly reduces the pool of available schools for matching purposes.

Propensity Score Matching

In addition to including pre-intervention measures of the outcomes of interest as part of the matching process (in our case, teacher performance and turnover outcomes, as well as student testing outcomes), our procedure also included several demographic covariates that also change

[51] Cabarrus, Cumberland, Durham, Franklin, Wilson, and Winston-Salem/Forsyth were the other six applicants in 2016.

over time or are likely to have been impacted by historical changes outside the scope of the pilots, to reduce their influence on analyses of the outcomes of interest (Hallberg et al. 2018).

Another match consideration specific to the time-dependent nature of ITS is that matches should be based at least in part on the similarity of the pre-intervention *trend* of each outcome of interest (Somers et al. 2013), not just the similarity of the initial (i.e., 2013-14) measure. This means including either the 4-year slope of the outcome measure or each year of outcome data (not just the initial-year data point) in the matching equation. In the end, we did not include these slopes in our matching model, primarily because of the added challenge of finding matches when too many covariates are included in the model (Somers et al., 2013).

Strength of Matches

Matching was most difficult for those schools that started their programs during the 2016-17 school year (match year=2015-16), predominantly because these schools all were in the Chapel Hill-Carrboro City Schools system. CHCCS performance consistently ranks above other schools in the state for a number of reasons, which can make finding matches for these schools challenging.

Matches for schools that started their participation in the 2017-18 (match year=2016-17) and 2018-19 (match year=2017-18[52]) school years was much less challenging.

Because matches across all participating schools varied in their precision, we ran our analyses both on the full set of ATR and matched schools and on a reduced set of ATR schools with the tightest matches only. Both sets of results are reported in the main text of this report.

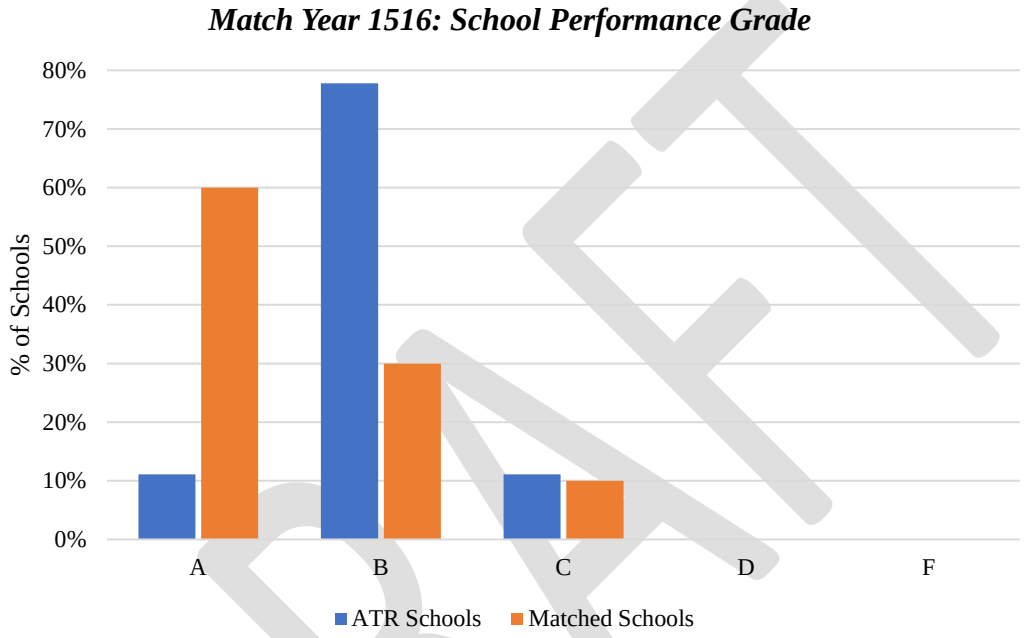
Selected cohort match statistics are presented on the following pages for all three groups of schools.

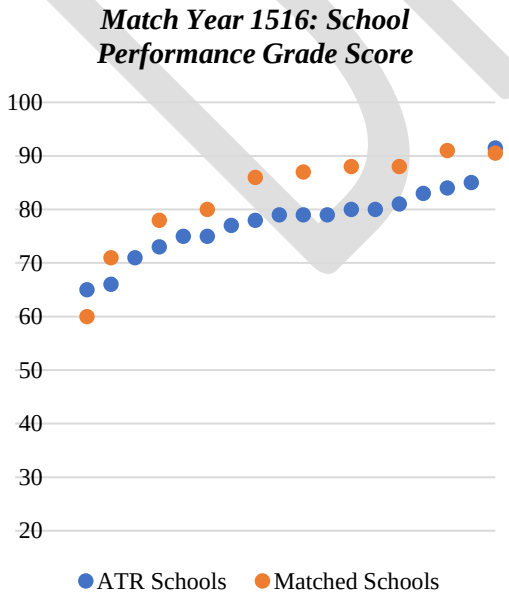
[52] These schools are not included in any of the quantitative analyses included in this report; most of their 1-year outcome measures (e.g., 2018-19 test results) were not available in time for analysis. Their results will be included in the final report.

Figure E1. Strength of Match, 2016-17 ATR Schools and Matched Comparison Schools

Match Year 1516: Title I Status

	% of Schools
ATR Schools	50.0%
Matched Schools	20.0%





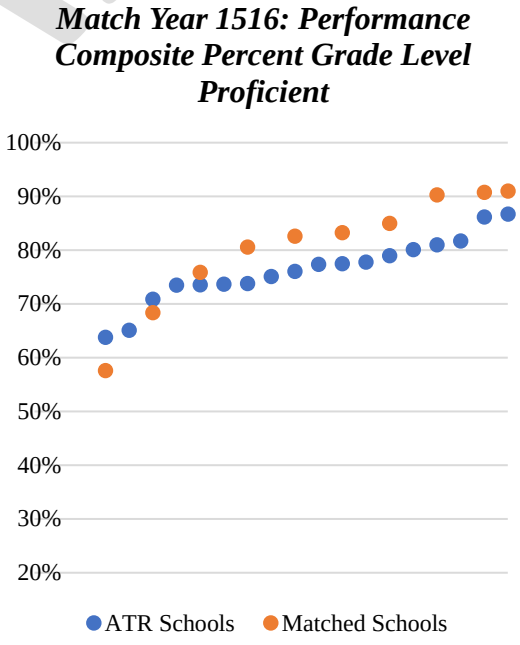
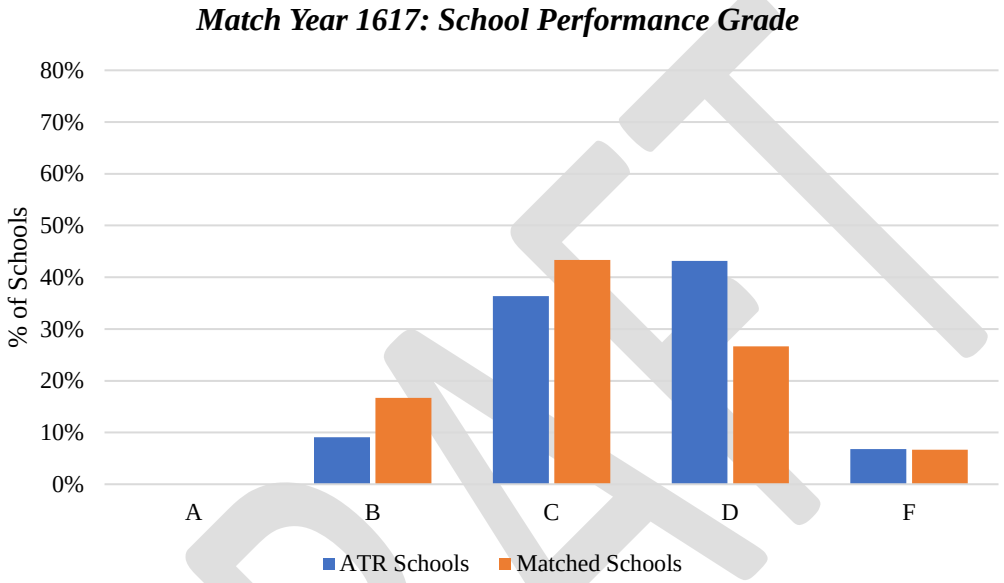
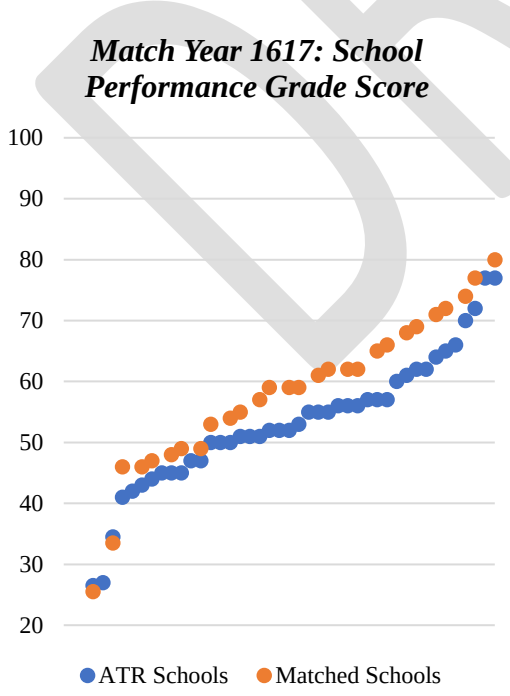


Figure E2. Strength of Match, 2017-18 ATR Schools and Matched Comparison Schools

Match Year 1617: Title I Status

	% of Schools
ATR Schools	81.8%
Matched Schools	76.7%





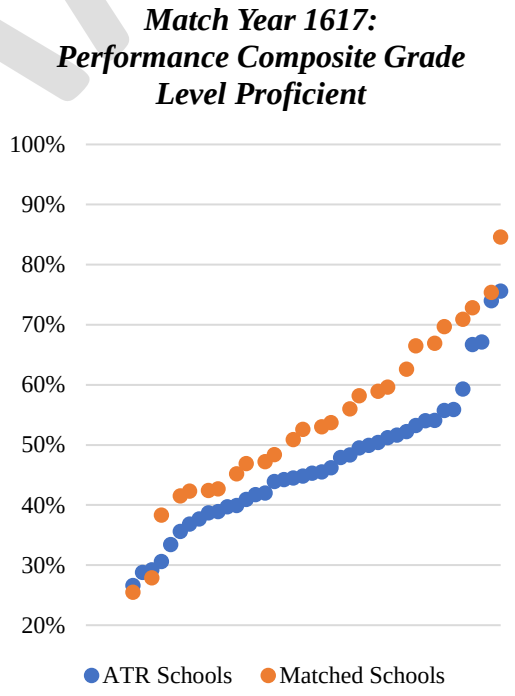
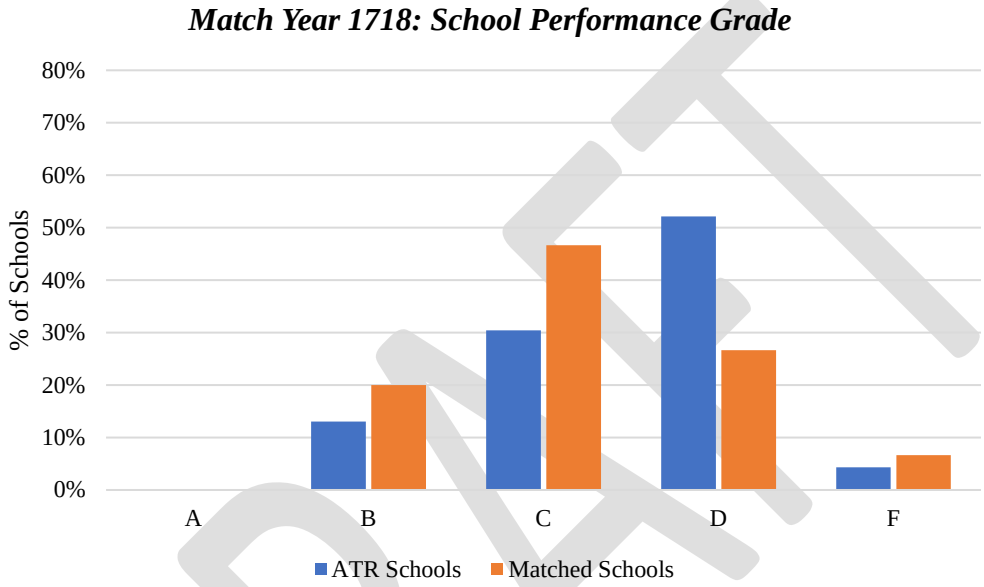
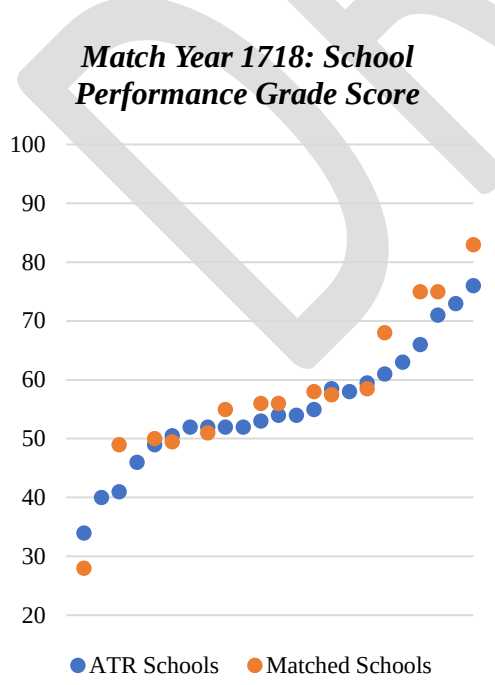


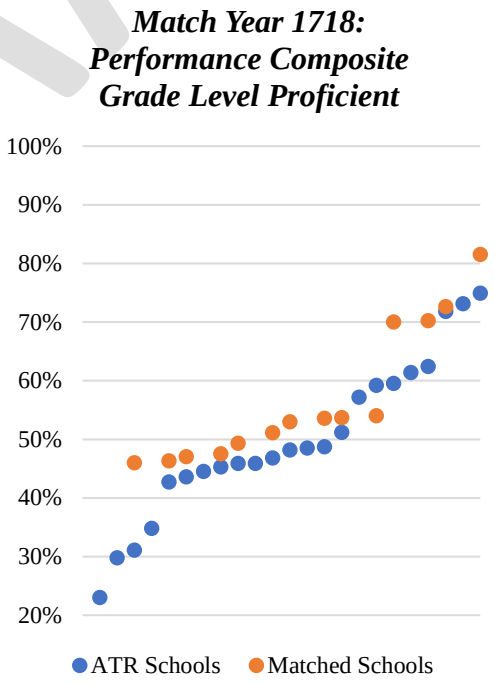
Figure E3. Strength of Match, 2018-19 ATR Schools and Matched Comparison Schools

Match Year 1718: Title I Status

	% of Schools
ATR Schools	78.3%
Matched Schools	60.0%

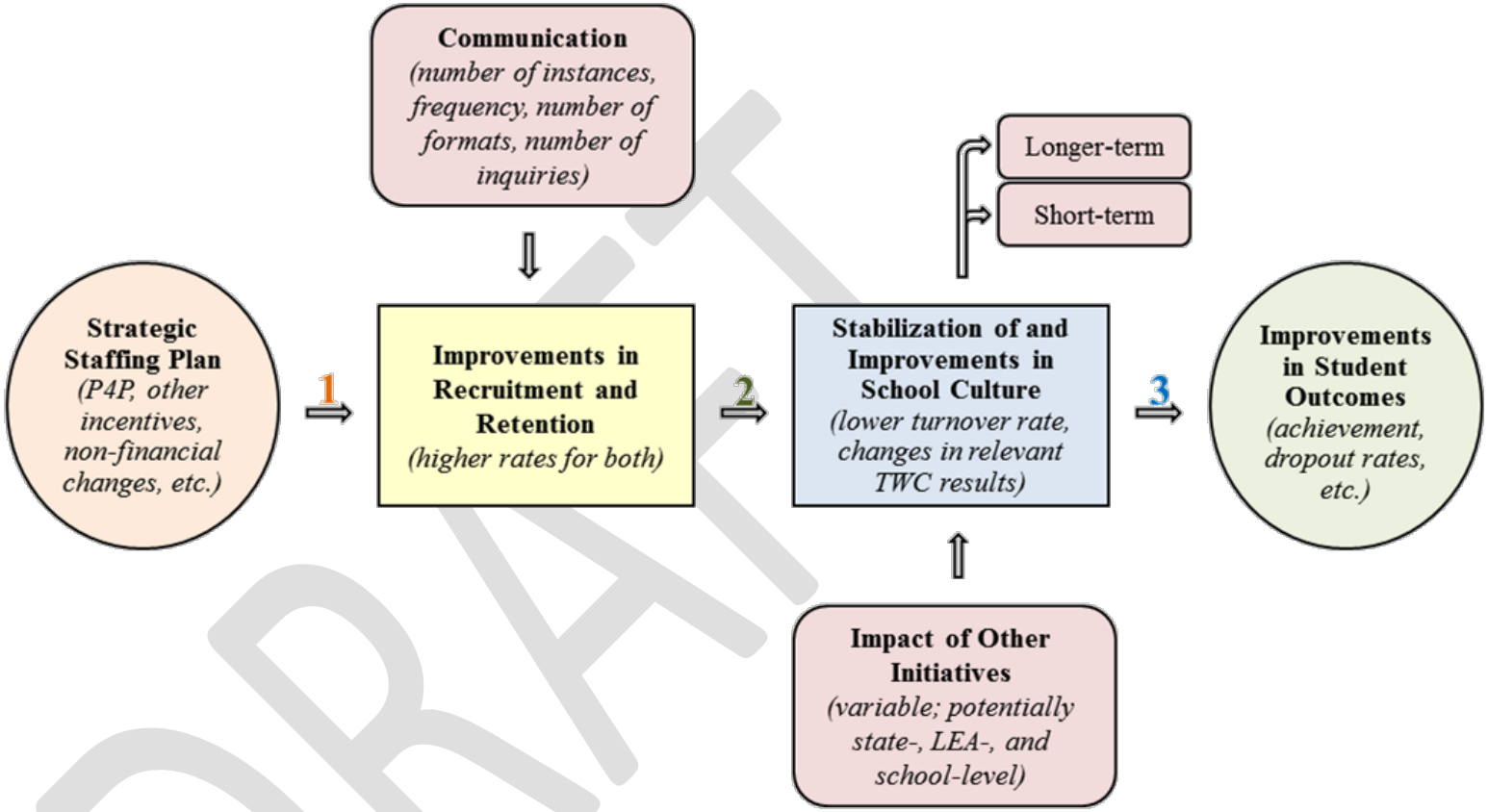






Appendix F. Advanced Teaching Roles Theory of Change

Evaluations of state- and local-level advanced teaching roles initiatives funded by North Carolina's Race to the Top grant (2010-2014)[53] suggested that several intermediate changes needed to occur in a school (e.g., better teacher recruitment and retention, lower teacher turnover rate, etc.) before the existence of a staffing plan would have a measurable impact on student outcomes:



[53] At the time, referred to as *strategic staffing* initiatives: http://cerenc.org/rttt-evaluation/equitable-supply-and-distribution-of-teachers-and-leaders/

Appendix G. Evaluation Questions, Outcomes, Indicators, Data Sources, and Analyses

Evaluation Question	Measurable Outcome	Indicator	Data Source(s)[54]	Quantitative Analysis (If Applicable)
Q1. Do advanced teaching roles improve the quality of classroom instruction?	A. (Indirect) School performance scores increase over time	Changes in: 1. School performance grade score; and 2. Proportion of students performing at/above grade level in each tested subject relative to matched schools	State administrative data	Interrupted Time Series (ITS)
	B. Teachers demonstrate quality classroom instruction	Teachers and school leaders report quality classroom instruction	Teacher and principal focus groups and/or surveys	
	C. Teachers[55] exhibit greater VA growth relative to pre-initiative period	1. Changes in overall school/LEA teacher quality (as measured by EVAAS [SAG/EEG] outcomes) over time 2. *[Pending data availability]: Changes in lead teacher and directly-impacted teacher quality (as measured by EVAAS outcomes) over time*	EVAAS data (School-level: SAG, EEG)	ITS

[54] See **Data and Methods** for more details.

[55] *Note*: The evaluation team also may attempt to measure lead teacher and other teacher performance changes separately, to determine changes in either group (as opposed to just changes in the overall group), as time, data, and funding allow.

Evaluation Question	Measurable Outcome	Indicator	Data Source(s)[54]	Quantitative Analysis (If Applicable)
Q1. (cont.) Do advanced teaching roles improve the quality of classroom instruction?	D. Teachers exhibit greater VA growth than a) teachers at other matched local (same-district) or nearby (comparable neighbor district) schools and b) statewide growth averages	1. Changes in overall teacher quality (as measured by EVAAS outcomes) vs teacher quality in matched schools in the LEA or region 2. Changes in overall teacher quality (as measured by EVAAS outcomes) vs teacher quality in all other schools statewide	EVAAS data (School-level: SAG, EEG)	ITS
	E. Students exhibit increased interest and engagement in class	1. Students report increased interest in class 2. Teachers report increased student engagement	Student and teacher survey and/or focus group data	
Q2. Do advanced teaching roles increase school-wide student growth?	A. Students demonstrate greater academic growth relative to pre-initiative period	Changes in overall student growth (school level) over time	State administrative data	ITS
	B. Students exhibit more growth than a) students at other matched local (same-district) or nearby (comparable neighbor district) schools; and b) statewide growth averages	1. Changes in overall student growth (school level) vs students in matched schools in the LEA or region 2. Changes in overall student growth (school level) vs all other schools statewide	State administrative data	ITS

Evaluation Question	Measurable Outcome	Indicator	Data Source(s)[54]	Quantitative Analysis (If Applicable)
Q3. Do advanced teaching roles and/or related local-level salary supplements, either collectively or individually, increase attractiveness of the teaching profession?	A. Teachers apply for and fill advanced roles	1. Changes in lead teacher application figure 2. Changes in lead teacher vacancy figures	Local administrative data	Annual, per-LEA counts and averages
	B. Lead teachers remain in advanced roles	Teacher retention in lead teacher roles (annual)	Local administrative data	Annual, per-LEA counts, %s, and averages
	C. Teachers remain in participating schools	1. Changes in teacher retention (school level) vs retention in matched schools in the LEA or region 2. Changes in teacher retention (school level) vs retention in all schools statewide	State administrative data (School-level: all teachers, 0-3 teachers, 4-10 teachers, 10+ teachers)	ITS
	D. Teachers apply for positions in participating LEAs because of the initiative	Teachers attribute attractiveness of the teaching profession (in part or in whole) to initiative	Teacher and principal surveys and/or focus groups Teacher preparation program surveys	
Q4. Do the pilot programs provide recognition to high-quality classroom teachers?	A. Schools/LEAs provide role-based incentives for lead teachers	1. Financial program incentives 2. Job-related (e.g., leadership position) program incentives	Pilot program theories of action/logic models/incentive schedules Teacher and principal focus groups and/or surveys	
	B. Schools/LEAs recruit and hire/reassign high-quality teachers for advanced roles	Initiative recruitment/ recognition plan	Pilot program theories of action/logic models Teacher and principal focus groups and/or surveys	

Evaluation Question	Measurable Outcome	Indicator	Data Source(s)[54]	Quantitative Analysis (If Applicable)
Q4. (cont.) Do the pilot programs provide recognition to high-quality classroom teachers?	B. (Cont.) Schools/LEAs recruit and hire/reassign high-quality teachers for advanced roles	Lead teacher quality measures (e.g., local measures, prior EVAAS scores, etc.) compared to lead teacher applicant quality measures	Local administrative data EVAAS data (Teacher-level: Teacher Composite Index value)	Annual, per-LEA counts, %s, and averages
Q5. Do the pilot programs support retention of high-quality classroom teachers?	A. Programs sustain advanced positions	1. Program funding allocation and sustainability plans 2. Number and type of advanced roles available to teachers each year	Pilot program theories of action/logic models Local administrative data	
	B. The proportion of high-quality teachers at participating schools increases	Change in overall teacher quality (as measured by EVAAS outcomes) over time	EVAAS data (School-level: SAG, EEG)	Annual, per-LEA counts, %s, and averages
Q6. Do the pilot programs provide assistance to and support retention of beginning classroom teachers?	A. Lead teachers support new/beginning teachers (e.g., mentor, planning, model strategies, etc.)	*[Pending data availability] Lead teacher evaluations identify practices/actions that support beginning teachers*	State teacher evaluation data (Leadership domain)	Annual, per-LEA counts, %s, and averages
		1. Lead teachers/ administrators report provision of support to new teachers 2. New teachers report receiving adequate support from lead teachers	Pilot program theories of action/logic models Teacher and principal focus groups and/or surveys	
	B. New/beginning teachers remain in pilot school/LEA	New teacher attrition figures (annual)	State administrative data	Annual, per-LEA counts, %s, and averages
		New teachers indicate a desire to continue teaching (short and/or long term)	Teacher and principal focus groups and/or surveys	

Evaluation Question	Measurable Outcome	Indicator	Data Source(s)[54]	Quantitative Analysis (If Applicable)
Q7. In what other ways do these pilot programs impact high-quality experienced classroom teachers?	Other unanticipated/ untracked program impacts (direct and indirect)	1. Teacher perceptions of impact related to the program 2. Principal perceptions of impact related to the program	Teacher and principal focus groups and/or surveys	
Q8. What do the pilot programs have in common? What are each pilot program's unique components?	Participating LEAs and evaluation team complete state-level and program-specific logic models	1. Descriptions of program models, intended impact, and fidelity of implementation 2. Unique program elements highlighted	Pilot program theories of action/logic models Descriptions of similar or related prior initiatives	
Q9. As measured by the quantitative and qualitative outcomes of interest described above, which pilot program or programs appear to be the most successful?	Measurable outcomes for Q1 through Q7 -- individually or collectively -- indicate successful outcomes for a specific pilot model or models	Comparative assessment of qualitative and quantitative results for Q1 through Q7	All data gathered and results generated for evaluation questions described above	
Q10. Which pilot programs appear to be most scalable? What resources would the state need to commit in order to successfully scale them?	Program sustainability measured by cost (and availability) of resources to maintain roles and salary supplements[56]	LEA projections for fiscal sustainability after pilot period (cost)	Extant state and local fiscal data	

[56] A rigorous benefits-costs analysis or cost-effectiveness analysis is not feasible on the current pilot timeline and evaluation budget

Evaluation Question	Measurable Outcome	Indicator	Data Source(s)[54]	Quantitative Analysis (If Applicable)
Q10a. Should the state consider scaling one or more of the pilot programs?	A. Individual successful program components identified for Q9 show evidence of scalability to other LEAs B. Overall successful pilot program(s) identified for Q9 show evidence of scalability to other LEAs	1. Pilot program components are not place-dependent (i.e., they do not require locale-specific inputs, can be adapted across LEA contexts) (flexibility) 2. Via survey and focus groups, implementers indicate ease of implementation (minimum LEA capacity requirements)	All data gathered and results generated for Q1 through Q9 Extant state and local fiscal data	
Q11. What are the costs and benefits associated with establishing advanced teaching roles? To what extent does the return on investment in establishing new compensation models that correspond with these roles (as measured by the outcomes of interest described above) justify the investment?	Teachers and administrators express support for continuing the pilot	1. Trends in teacher survey responses over pilot period 2. Trends in administrator survey responses over pilot period 3. Trends in teacher focus group responses over pilot period 4. Trends in administrator focus group responses over pilot period	All data gathered and results generated for evaluation questions described above	

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