

ADVANCING STUDENT ACHIEVEMENT & DEVELOPMENT IN NC:

Promising Policies & Practices for the Teaching Workforce

POLICY BRIEF

Teachers matter to the short- and longer-term trajectories of K-12 students.

In the short term, teachers affect student learning and the development of social-emotional skills. Longer term, teacher performance is related to students' educational attainment, employment, and earnings in the workforce. Given the importance of teachers, state and local officials are responsible for ensuring that every North Carolina classroom is staffed by an effective teacher. Meeting this goal requires a coordinated and strategic vision for the teaching workforce that spans the entirety of teachers' careers. That is, state and local officials need to enact a cohesive set of policies and practices focused on teacher recruitment and selection, teacher preparation, teacher on-the-job development and retention, and amplifying teacher impacts. North Carolina has been a regional and national leader in many of these policy and practice areas. However, there are also opportunities to innovate, refine, and better align policies and practices to strengthen the state's teaching workforce. A strong teaching workforce will directly benefit the students of North Carolina. To consider North Carolina's teaching workforce and promising approaches for its improvement, this policy brief is organized into four sections: (1) a high-level view of the teaching workforce in North Carolina; (2) a description of the importance of teachers to student outcomes; (3) a review of what we know about improving teaching quality and retention; and (4) a set of recommendations for how policymakers and practitioners can advance these goals.

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The Current Landscape of the Teaching Workforce in North Carolina



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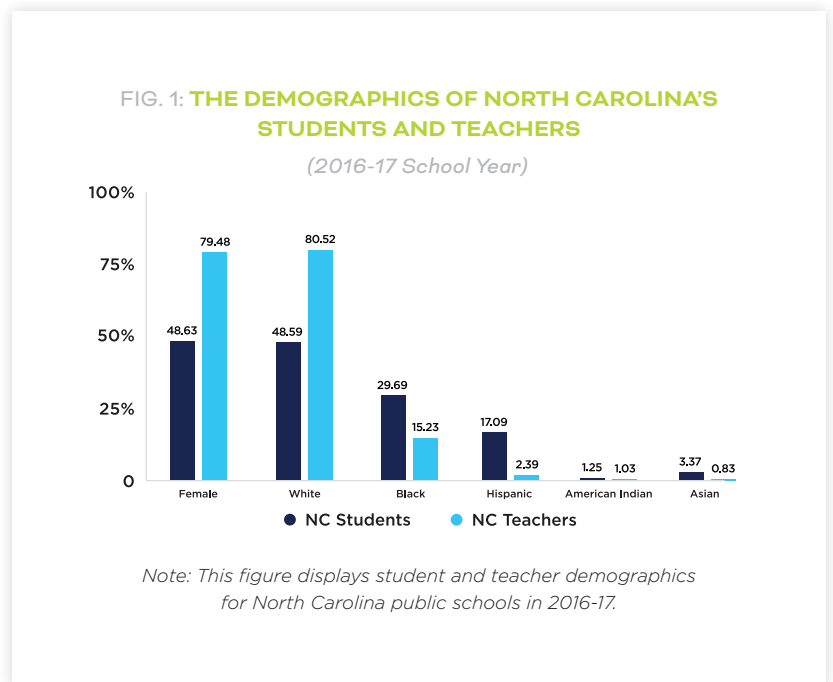
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The Demographics of North Carolina's Students and Teachers

Over the last decade, the population of students attending North Carolina public schools (NCPS) has become increasingly diverse. In 2007, white students accounted for nearly 56 percent of public school enrollees. By 2017, after a steady increase in North Carolina's Hispanic population, white students accounted for 49 percent of public school enrollees. North Carolina public schools are now majority minority and like many states, North Carolina does not have a teacher workforce that resembles its student population.

Figure 1 shows that white females make up a majority of the teacher workforce in North Carolina. In 2017, nearly 80 percent of North Carolina's teachers were female and nearly 81 percent were white. In total, 64 percent of the state's teachers are white females. These values are essentially unchanged from 2007, when 80 percent of the teachers were female and 83 percent were white. The percentage of black and Hispanic teachers has increased slightly over the last decade but this has not substantively narrowed the racial/ethnic minority gaps between students and teachers. The percentage of black students is nearly twice that of black teachers, while the percentage of Hispanic students is seven times larger than that of Hispanic teachers. These gaps are relevant to North Carolina, especially with research documenting the positive impacts of racial/ethnic minority teachers on the test scores and educational attainment of same-race students.^{1,2}



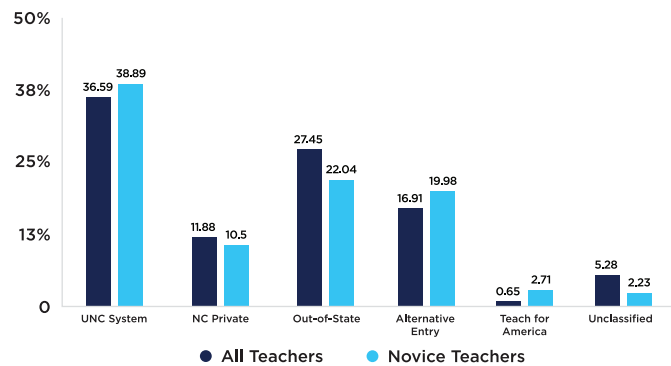
Staffing North Carolina's Schools

As a large and growing state, North Carolina needs a steady supply of teachers to staff its public school classrooms. This is particularly true in areas with critical and persistent teacher shortages—STEM, special education, and high-poverty schools. While the University of North Carolina (UNC) System is the largest single supplier of teachers to NCPS, the state's teacher workforce is also comprised of many in-state private university, out-of-state university, and alternative entry teachers. This diversity in preparation matters: on average, those prepared by in-state institutions are more effective, as measured by student achievement gains and evaluation ratings, and are more likely to remain teaching in NCPS than those prepared out of state or entering teaching alternatively.^{3,4}

Figure 2 shows that teachers traditionally prepared by UNC System institutions comprised 37 percent of the state's teacher workforce in 2017. Traditionally prepared teachers from in-state private colleges and universities comprised another 12 percent of the teacher workforce. In addition to in-state supply sources, North Carolina imports a significant number of its teachers from other states. In 2017, approximately 28 percent of the state's teacher workforce had been prepared at an out-of-state college or university. Alternative or lateral entry teachers—those who entered teaching having not completed all of their licensure requirements—made up 17 percent of the state's teacher workforce in 2017. These alternative entry teachers are more likely to be male or a racial/ethnic minority and are concentrated in North Carolina's middle and high schools. Finally, Teach for America—an alternative teacher preparation provider for low-income and low-performing schools—comprised less than 1 percent of the full workforce and approximately 3 percent of the state's novice teachers.

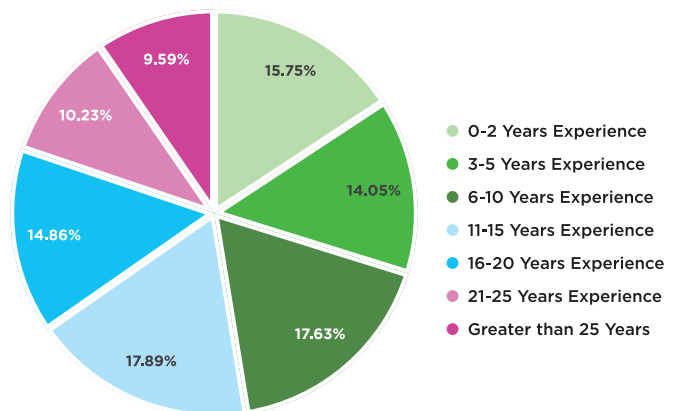
Related to teacher preparation is the relative “green-ness” of North Carolina's teacher workforce. **Figure 3** illustrates that nearly 16 percent of the state's workforce has less than three years of teaching experience, while another 14 percent has three to five years of experience. These figures are connected to student achievement and equity since

FIG. 2: THE PREPARATION OF NORTH CAROLINA'S TEACHERS (2016-17 School Year)



Note: This figure displays the percentage of teachers with different forms of preparation in the 2016-17 school year. Results are displayed for all teachers and for novice teachers with less than three years of experience.

FIG. 3: THE EXPERIENCE OF NORTH CAROLINA'S TEACHER WORKFORCE (2016-17 School Year)



Note: This figure displays the teaching experience of North Carolina public school teachers in 2016-17.

inexperienced teachers are often less effective⁵ and are concentrated in high-need subject areas (e.g. STEM, special education) and in high-poverty schools.⁶

Teacher Retention in North Carolina

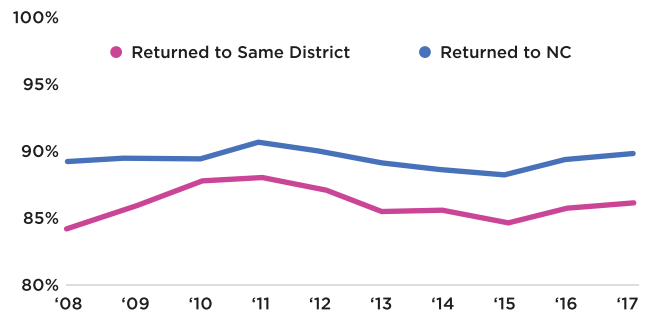
Teacher retention is a priority for states, districts, and schools since turnover harms student achievement and results in school instability and more teaching vacancies.⁷ **Figure 4** presents the percentage of teachers who returned to any NCPS and the percentage of teachers who returned to the same North Carolina school district during the 2008 through 2017 school years. In the first half of this data window (2008-2012), approximately 89 percent of teachers returned to NCPS annually. This percentage dropped in 2012 through 2015 but has since rebounded. School district retention displays a similar pattern, with a drop in district retention in the middle of this data period and an uptick to 85 percent in the most recent school years. Since North Carolina employs approximately 95,000 teachers, a single percentage point change in retention is significant: resulting in schools/districts needing to hire nearly 1,000 more (or fewer) teachers.

Descriptive data show that district-level teacher retention is highest in western North Carolina—approximately 88 percent in the Northwest and Western State Board of Education (SBE) regions—and lowest in the northeast portion of the state—approximately 81 percent in the Northeast and North Central SBE regions. Likewise, teacher retention is lower, by two percentage points, in North Carolina’s Tier One counties (i.e. the state’s 40 most economically distressed counties).⁸ Teacher turnover reports prepared by NCDPI show that, on average, teachers exiting NCPS are significantly less effective, as measured by EVAAS, than teachers who remain in the state.⁹ While many factors influence teacher retention, research indicates that perceptions of school leadership have the greatest impact on teachers’ retention decisions.¹⁰

Teacher Performance in North Carolina

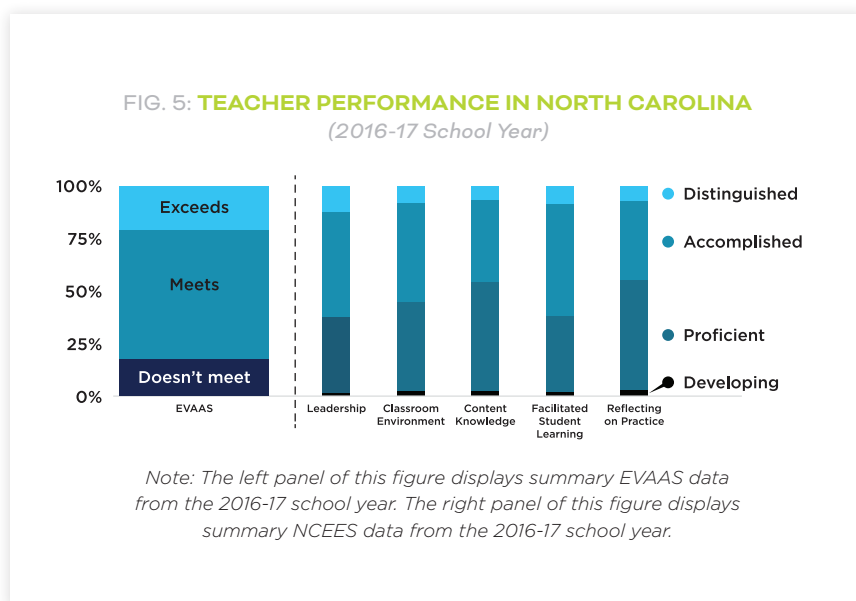
North Carolina assesses the performance of its teachers in two official ways: (1) Education Value-Added Assessment System (EVAAS) estimates and (2) ratings from the North Carolina Educator Evaluation System (NCEES). EVAAS is a way to measure teachers’ contributions (value-added) to student achievement growth on North Carolina’s End-of-Grade, End-of-Course, early-grades reading, and final exams. NCEES is the rubric used to evaluate teachers on the state’s five professional teaching standards—Leadership, Classroom Environment, Content Knowledge, Facilitating Student Learning, and Reflecting on Practice.

FIG. 4: **TEACHER RETENTION IN NORTH CAROLINA**
(2008 through 2017)



Note: This figure displays the percentage of teachers who returned to any North Carolina public school in the specified year and the percentage of teachers who returned to the same school district in the specified year.

Figure 5 presents summary EVAAS and NCEES data from the 2016-17 school year. EVAAS data show that 17 percent of teachers were classified as not meeting expected student growth. Sixty-three percent were classified as meeting expected student growth and 20 percent as exceeding expected student growth. Teacher evaluation data from the NCEES are positively (albeit weakly) correlated with EVAAS estimates. NCEES data show that very few teachers (approximately 2 percent) were rated below proficient. Teachers were most commonly rated “accomplished” for the Leadership, Classroom Environment, and Facilitating Student Learning Standards and “proficient” for the Content Knowledge and Reflecting on Practice standards. Across teaching standards, approximately 6-12 percent of teachers were rated as “distinguished.”



The Importance of Teachers to Short-Term and Longer-Term Student Outcomes

Teachers matter to the short- and longer-term outcomes of students. In the short term, teachers significantly impact students’ test score gains on standardized assessments (commonly referred to as teacher value-added). In fact, research shows that teachers are the most important school-based resource explaining student achievement.¹¹ Simply put, of all the school factors that influence student learning— e.g. school administrators, students’ peers, textbooks and curricula, academic programs, funding—teachers are the most powerful predictor of student test score gains. While there are highly effective teachers in disadvantaged schools, emerging research shows that low-income, minority, and low-performing students lack equitable access to this vital educational resource.¹² This challenges state and local officials to identify and promote policies and practices that more equitably distribute teachers.

Early research on teacher value-added finds that students assigned to a highly effective teacher for three consecutive years score 50 percentage points higher on achievement tests than students assigned to an ineffective teacher for three consecutive years.¹³ As another way to quantify teachers’ effects, researchers have converted teachers’ impact on student achievement into equivalent months of student learning. This approach assumes that students taught by highly effective teachers gain months of learning during the school year, while students taught by ineffective teachers lose months of learning. Relative to students taught by teachers of average effectiveness, students taught by a highly effective teacher gain 4.5 months of additional learning in math and 1.2 months in reading. Conversely, students taught by an ineffective teacher lose 3.1 months of learning in mathematics and 1.3 months in reading. When comparing highly effective to ineffective teachers, that is a difference of 7.6 and 2.5 months of learning in mathematics and reading during one school year.¹⁴

While test scores are the most commonly used and direct way to measure teachers' short-term impacts, emerging research is also investigating teachers' influence on a range of student social-emotional outcomes. This research has produced two important findings. First, teachers have large effects on student self-efficacy and growth mindset, student effort and grit, and student happiness and behavior. For example, teachers' effects on students' growth mindset, grit, and effort in class are as large as teachers' effects on student achievement in mathematics and reading. Second, the teachers who are effective at raising student test scores are often different from the teachers who are effective at generating these social-emotional outcomes.^{15,16} This finding indicates that teacher effectiveness is multi-dimensional and challenges state and local officials to consider broader definitions of teacher effectiveness in policymaking.

By linking K-12 education data to post-secondary, employment, and income tax records, researchers are beginning to assess the long-term impacts of teachers. Essentially, this work asks whether a single highly effective teacher or set of highly effective teachers significantly influences the life trajectories of young adults. To date, the seminal study shows that students assigned to high value-added teachers are more likely to attend college and earn higher salaries as young adults. These individuals are also more likely to participate in retirement plans and live in neighborhoods with higher concentrations of college graduates. Researchers have also attempted to monetize the value of teachers to students' future earnings. Some calculations show that replacing a very ineffective teacher with an average teacher would increase the present value of students' lifetime income by approximately \$250,000 per class.¹⁷ In many ways, both short- and longer-term, teachers impact the well-being of students, and by extension, the well-being of North Carolina.

What Research Says About Improving the Teaching Workforce

There are many phases in a teacher's career, including initial decisions to enter teaching, formal preparation for the profession, improving practice through on-the-job learning, and becoming a master, veteran teacher. When trying to improve the teaching workforce, state and local officials should have a coordinated and cohesive vision for policy that spans all of these career phases. That is, policymakers will more effectively shape the teaching workforce through proactive and coordinated action across these career phases rather than through one-off and reactive reforms.

Therefore, this section of the policy brief spans the chronology of a teacher's career to review evidence and best practices for teacher recruitment and selection, teacher preparation, supporting teachers' on-the-job development and retention, and amplifying teachers' impacts and persistence through personalized development opportunities and advanced teaching roles. Highlighting what works in each of these career phases naturally elevates a set of recommendations to improve the teaching workforce in North Carolina.

Teacher Recruitment and Selection

The goal of teacher recruitment and selection is to bring effective and persistent teachers into teacher preparation programs (TPPs) and the teaching profession. This section considers who these teachers are and promising strategies to accomplish this goal.

Efforts to improve the composition of the teacher workforce often focus on bringing academically competitive individuals, as measured by SAT/ACT scores and grade point average (GPA), into TPPs and teaching. Research evidence is not conclusive but indicates



that academic credentials are positively, albeit weakly, connected to the performance of teachers.¹⁸ In North Carolina, academic credentials are a key reason why Teaching Fellows are more effective than other in-state prepared teachers and why Teach for America corps members are more effective than other novice teachers in STEM subject areas.¹⁹ While academic credentials receive the majority of attention, research suggests that non-cognitive traits—e.g. conscientiousness, grit, motivational ability—are also related to teacher performance and retention. Studies across employment sectors show that conscientiousness predicts employee performance.²⁰ In North Carolina, first-year teachers with higher levels of self-reported conscientiousness are more effective, as measured by EVAAS and NCEES ratings, and are more likely to return to teaching.²¹ Importantly, non-cognitive traits predict unique sources of variation in outcomes. This suggests that academic credentials and non-cognitive traits can be used, in combination, to recruit and select teachers.

As the population of North Carolina’s public schools becomes increasingly diverse, attracting a diverse teaching workforce takes on greater significance. Research evidence indicates that same-race teachers boost student achievement in mathematics and reading; black teachers may particularly improve the test scores of low-performing black students.^{22,23} Beyond achievement, students with a same-race teacher report feeling happier and putting forth more effort in class, feeling more motivated and cared for, and having higher academic aspirations.²⁴ Longer term, black males assigned to at least one black teacher in elementary school are more likely to complete high school.²⁵

Financial incentives represent one way to recruit and select a more competitive and diverse teaching workforce. These financial incentives can take different forms: higher overall base pay for teachers, differentiated pay structures that reward performance and encourage individuals to enter teaching (overall or in high-need subject areas/schools), and recruitment incentives, such as signing bonuses and competitive scholarship loan programs. Research indicates that higher salaries are linked to increases in the academic aptitude of teachers and to teacher retention rates.²⁶ While money is not the primary reason that many individuals enter teaching, pay is related to the prestige of professions. Teachers earn less than other comparably educated workers²⁷ and as women have enjoyed expanded employment opportunities (with greater pay and prestige), the teaching profession has struggled to attract as many highly competitive females.²⁸

Requirements for entry into teaching represent another way to impact teacher recruitment and supply. In North Carolina, the traditional pathways for entering teaching are four-year undergraduate programs or two-year Masters of Arts in Teaching programs. In the past two decades, policymakers have also opened alternative routes into teaching that allow qualified individuals to simultaneously teach and earn their teacher certification. This has brought more males and minorities into the profession and has helped address shortages in particular licensure areas and types of schools. Other, more targeted pathway interventions include allowing school districts to recruit and prepare prospective teachers or encouraging those with prior education experiences—e.g. working as a teaching assistant—to earn their teaching license. These individuals already know the realities of K-12 classrooms and are more likely to persist in teaching.²⁹



Teacher Preparation

The goal of teacher preparation is to provide high-quality experiences that help prospective teachers acquire the knowledge and skills necessary to succeed and persist. This section considers where teachers are getting those experiences and the current evidence around effective preparation practices.

Research indicates that individuals entering teaching through certain pathways or from certain preparation programs are more effective and more likely to persist in teaching. For example, traditionally prepared teachers are slightly more effective and more likely to remain in teaching than alternative entry teachers.³⁰ Likewise, in North Carolina, teachers prepared at in-state institutions are more effective and more likely to persist than those prepared out of state.³¹ At the program level, graduates of certain UNC System institutions are more effective than teachers prepared outside of the UNC System.³² These findings suggest that it is possible to modestly improve the effectiveness and retention of the teaching workforce through policies and practices that promote these preparation pathways and programs. However, these studies also show that there is substantial variation in the performance and retention of teachers from the same preparation pathway or program. This highlights the need to better understand effective teacher preparation practices.

When it comes to these promising teacher preparation practices, there is still much to learn. However, evidence is beginning to build around several effective components. First, beginning teachers who have more opportunities to practice and learn key knowledge and skills during their preparation program are more effective.³³ This suggests the importance of practice-based coursework and learning. Second, early-career teachers are more effective if they student taught in high-quality learning environments—i.e. student teaching in schools with higher levels of teacher retention, teacher collaboration, and student achievement gains—and with highly effective clinical teachers.³⁴ Furthermore, early-career teachers are more effective when their in-service school is similar to their student teaching school.³⁵ These results encourage TPPs and school districts to work more closely together to improve student teaching placements. Lastly, student teachers who perform well on new portfolio-based performance assessments (e.g. edTPA) are more effective as beginning teachers.³⁶ These studies are in early stages, but suggest that authentic assessments of teacher candidate knowledge and skills are a valuable source of data for teacher preparation program improvement.

Supporting Teachers' On-the-Job Development and Retention

After individuals are recruited, prepared, and hired, they enter the teaching profession needing to learn and develop on the job. States, districts, and schools can encourage this growth by providing supports and resources that promote teacher learning and retention. This section considers promising practices to develop and retain the teaching workforce.

Like many professionals, teachers want to work in collaborative and rewarding environments led by high-quality leaders. Research shows that teachers benefit from these experiences. For example, early-career teachers improve more rapidly in schools with supportive learning environments;³⁷ mid-career teachers improve after receiving feedback during a rigorous performance evaluation.³⁸ Likewise, evidence suggests that teachers learn from one another: Teachers are more effective in schools with high-quality teacher collaboration³⁹ and after a higher-performing teacher enters their teaching team.⁴⁰ Underlying much of this teacher development is the quality of school leadership. Principals



(and assistant principals) create the school environments and the opportunities for teacher collaboration that amplify or impede teacher learning. As such, it is not surprising that teachers' perceptions of school administrators are the strongest predictor of teacher retention at the school.⁴¹

Supports for novice teachers are one component of a supportive learning environment. High-quality and intensive beginning teacher induction programs boost teacher retention.⁴² For example, novice teachers receiving induction services from the North Carolina New Teacher Support Program are more likely to return to their school in the following year.⁴³ The evidence is less conclusive for teacher effectiveness, but suggests that induction programs can improve novice teachers' instructional practices and the achievement of their students.⁴⁴ Induction programs are part of a broader approach to improve teachers' knowledge and skills through instructional coaching. With intensive coaching supports, both novice and veteran teachers can improve the quality of their teaching practices and the achievement of their students.⁴⁵ A challenge with any induction or coaching program is preserving program quality while scaling up to serve more teachers.

Lastly, research shows that schools can promote teacher development and retention through the strategic assignment of teachers to subjects/grades. Elementary school teachers are less effective and less likely to persist when they are assigned to teach different grade levels;⁴⁶ middle school teachers are less effective after switching grade levels and/or subject areas.⁴⁷ Importantly, these results exemplify a larger theme of this section: Supports to improve the effectiveness and retention of teachers do not always need to be costly or challenging to scale. Instead, simple practices to improve school operations—e.g. providing time for meaningful teacher collaboration, strategically assigning teachers—can yield valuable benefits.

Amplifying Teachers' Impacts

After mastering their craft through years of classroom experience, many teachers are left wondering what comes next. How can they advance in their careers and will they need to give up teaching to do so? This section reviews strategies to amplify teachers' reach and to keep them engaged and remaining in the teaching profession over the long run.

Parallel to other professions, pay, advancement, recognition, and ongoing growth are critical to the long-term impacts and retention of teachers. Too often, teaching has been a one off-ramp profession—i.e. the only opportunity for advancement and broader impacts was to become a school administrator. Although school leadership is vital to school success, this removes effective teachers from the classroom and limits opportunities for teacher peer-to-peer learning and teacher leadership/advocacy. As such, it is important for states and school districts to design a range of personalized teacher development opportunities and to create leadership and advanced roles that challenge teachers and leverage their expertise and experiences. Several North Carolina school districts are currently experimenting with these positions—e.g. advanced teacher roles, Opportunity Culture, career ladders. Other in-state groups are promoting teacher advocacy and connections to policymaking—e.g. North Carolina Teacher Voice Fellows. Evidence about many of these initiatives is limited; however, a recent study indicates that multi-classroom teachers in Public Impact's Opportunity Culture positively impact mathematics achievement.⁴⁸ Future work should continue to assess whether opportunities for personalized learning and advanced roles affect students and whether these opportunities keep individuals in teaching, particularly within high-need schools.



Recommendations

Overall

- Formulate a holistic and cohesive vision for policy and take proactive and coordinated steps to improve the teaching workforce
- Support the use of data and research—by the state, school districts, TPPs—to make evidence-based improvements in the recruitment/selection, preparation, and the ongoing development of teachers

Teacher Recruitment and Selection

- Increase the attractiveness of the teaching profession in North Carolina
- Diversify the state’s teaching workforce
- Prioritize a range of teacher characteristics—academic credentials, non-cognitive traits, prior education experiences—in recruitment and selection efforts

Teacher Preparation

- Boost enrollment in effective teacher preparation programs
- Require more practice-based coursework and school-embedded preparation experiences for pre-service teachers
- Promote closer partnerships between teacher preparation programs and school districts that improve student teaching experiences and connect teacher preparation to teacher induction

Supporting Teachers’ On-the-Job Development and Retention

- Ensure that school administrators have the knowledge, skills, and opportunity to create high-quality learning environments for teachers and students
- Promote teacher collaboration and peer-to-peer learning
- Invest in high-quality and intensive instructional coaching and beginning teacher induction

Amplifying Teachers’ Impacts

- Provide teachers with opportunities for advancement and leadership while staying in the classroom
- Extend the reach of highly effective teachers to benefit more students and peers

North Carolina has already made progress on many of these recommendations. With a continued commitment to these investments, coupled with a focus on new policies and practices, the state may soon see an improved teaching workforce.



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