TEACHFORAMERICA

North Carolina · Quarterly Legislative Report

March, 2015

"One day, all children in this nation will have the opportunity to attain an excellent education."

--Vision of Teach For America

For more than 20 years, Teach For America has partnered with North Carolina school districts in pursuit of educational excellence. Enabled by the state's investment, Teach For America has committed to maximizing our impact across the state by recruiting exceptional leaders to teach and growing our number of alumni living and working in North Carolina. Teach For America has also committed to strengthening the North Carolina Teacher Corps.

We are continuing to work hard to attract as many talented educators to North Carolina as possible. District partners are telling us that our pipeline of teachers is growing more and more important as the need for teachers increases. In the third quarter, the Charlotte Observer ran an article titled "What Keeps the CMS Superintendent Up at Night?" Ann Clark, Superintendent of Charlotte Mecklenburg Schools, answered two years ago, she may have worried about the rising number of impoverished students in the city, but today her top concern is being able to find quality teachers for the classroom. Clark says, "We have got to quickly think about how we attract the best and brightest to this state.[1]"

Superintendent Clark is unambiguous about the impact of Teach For America in Mecklenburg County. In the letter attached, Superintendent Clark writes:

> *After working with CMS for more than 30 years, I have had the privilege of partnering with many non-profit organizations that play a critical role in our success. One of our closest partners continues to be TFA because they help address an urgent need in our schools and provide a tremendous long-term return on our investment (see appendix B).*

Superintendent Clark is not alone in her support of Teach For America. Superintendent of Edgecombe County Schools, John Farrelly said:

> *Teach For America is a crucial talent pipeline. It helps recruit some of the finest beginning teachers from across the country to serve our students. Corps members are difference makers in our classrooms. Increasingly, Teach For America corps members and alumni are making our region home and working hard to improve educational outcomes for our children.*

Similar in sentiment, Dr. Ray Spain, Superintendent of Warren County schools, states:

> *Every day, Teach For America corps members and alumni work to meet the needs of the children and families in my district. Silver bullet? No. Critical aspect of the pursuit of educational equity in our highest-need schools and communities? Absolutely.*

Compounding the challenge of the teacher pipeline across the state is the added pressure of finding excellent talent for hard to staff STEM classrooms. We are proud that Teach For America can be part of the solution to this problem. This year, we have 293 teachers across the state who are placed in a STEM subject.

Nationally, Teach For America has committed to working hard to increase the number of STEM corps members by partnering with organizations like 100Kin10, a movement that is committed to having 100,000 excellent STEM teachers over the coming ten years. Today, more than 3,200 first and second-year STEM corps members are teaching math and science, making Teach For America one of the largest providers of math and science teachers in the country. A rigorous

[1] Dunn, Andrew. "What Keeps the CMS Superintendent up at Night? Finding New Teachers." The Charlotte Observer. 11 Feb. 2015. Web. See Appendix A

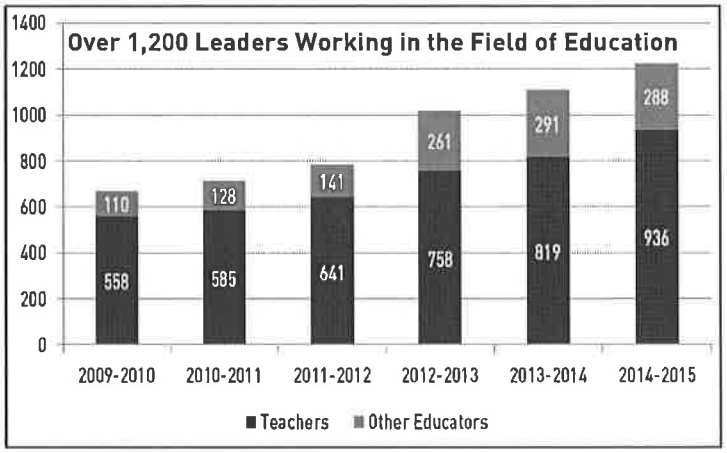
body of research has shown that Teach For America corps members who teach math and science have a measurable, positive, and statistically significant impact on student achievement (see appendix C).

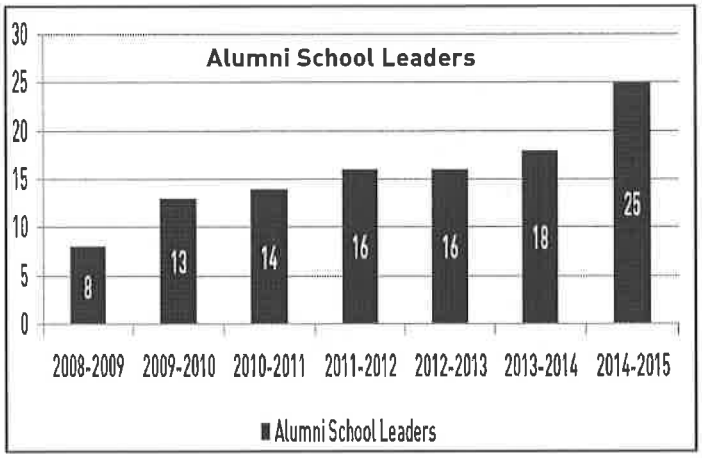
These teachers are not only serving in some of the most difficult to fill subject areas, but they are also performing at high levels. According to the University of North Carolina at Chapel Hill's Education Policy Initiative at Carolina's study in the peer-reviewed Journal of Teacher Education, Teach for America teachers are significantly more effective in middle grades mathematics, eighth grade science, middle grades algebra I, and high school mathematics and science (among others). They also garnered the highest level of principal evaluation of all groups studied as measured by the annual North Carolina Professional Teaching Standards (NCPTS) evaluation.[2]

We are proud to contribute to the overall teaching force in North Carolina, particularly in STEM content area placements, and are grateful for the state's continued support of our work. We are excited to update you on our progress in the third quarter.

Statewide Impact

Teach For America's impact across North Carolina currently exceeds 1,500 individuals living and working in 59 counties across the state. Over 900 are classroom teachers. Another 288 are working in the field of education. Among the 288 is a rapidly growing number of school leaders.





Many of our alumni not working directly in education are making an impact on low income communities. Among such alumni is Steve North of Mitchell County. North was a 1993 Eastern North Carolina corps member who currently is running a school-based telemedicine clinic called MY Health-e-Schools Network, which provides a solution to rural health care. The network operates like a standard clinic out of three school nurse offices, but with remote doctors and high-tech equipment. North uses Bluetooth technologies to diagnose patients virtually which saves them both money and time. North's telemedicine network operates in 14 of Mitchell County's 16 schools, serving 4,000 students (see appendix E). While North is not serving in a classroom capacity, his impact is certainly felt by the students and families in the communities he serves.

[2] Patterson, Kristina M., and Kevin C. Bastian. "UNC Teacher Quality Research: Teacher Portals Effectiveness Report." Education Policy Initiative at Carolina. May 2014. Web. See Appendix D

North Carolina Teacher Corps (NCTC)

Teach For America has committed to partnering with the state to inspire more North Carolinians to teach and lead as educators in our state. While we know great teachers exist across the nation, we believe that teachers with personal ties to North Carolina can make a unique contribution to our state, bringing a special sense of urgency and commitment to educating North Carolina's children.

Originally from Galax Virginia, Drew Cardwell attended Davidson College. Upon graduation, she decided to stay in North Carolina and joined the 2014 Eastern North Carolina Corps. She currently teaches math at Warren New Tech High School. When asked why she decided to stay in North Carolina to teach, Drew stated:

> *As a college student in North Carolina, it was incredibly eye-opening to see the stark difference between my college campus and the community immediately surrounding it. I didn't feel like I could leave North Carolina – it had become my home and I wanted to be here to fight for all kids to have access to attain what I did, and to give back to a state that had given a lot to me during my college years.*

We are excited that Drew is amongst the growing number of North Carolina connected corps members and hope that her commitment will inspire others to plant roots in the state. Our matriculated NCTC corps members to date represent 15 colleges across the United States including the University of North Carolina at Chapel Hill, Wake Forest, Duke, Harvard, and Yale. Of the matriculated NCTC corps members:

- The average GPA is 3.45
- 48% come from a low-income background[3]
- 59% are people of color
- 51% will be teaching math or science
- 32% are the first in their families to graduate from college
- 5% served in the military

To recruit this group, we supplemented Teach For America's recruitment methods with strategies tailored to NCTC candidates. These strategies include:

- **One-on-One Outreach:** We have conducted over 50 individual conversations with final round applicants from North Carolina. North Carolina staff and alumni used these calls to inspire applicants to choose to teach in North Carolina rather than choosing to teach out of state. Seventy nine percent of individuals who had a one-on-one conversation with a member of the North Carolina staff chose to teach in North Carolina.
- **NCTC Webinars:** We hosted webinars specifically for North Carolinians moving into final round of interviews. Over 50 North Carolinians attended these webinars and a recording of the webinar was sent to applicants who could not join. The webinars highlighted stories of current corps members and alumni with North Carolina ties who chose to lead in our state. Eighty five percent of applicants who attended a webinar chose to teach in North Carolina.
- **Created an NCTC Spotlight Video[4]:** We created an NCTC spotlight video to share with applicants with ties to North Carolina. The video highlights three current NCTC corps members with varied backgrounds and stories. The video is aimed to inspire applicants to choose to teach and live in North Carolina. The video has been sent out to applicants for the fourth application deadline and will be sent out in subsequent deadlines.
- **Presenting North Carolina Teacher Corps at Final Interviews:** For the second year in a row, we secured permission from our national admissions team to present the North Carolina Teacher Corps opportunity at all final round interview sites in the state. Following this presentation, applicants were allowed to change their

[3] As identified by receiving a full or partial Pell Grant
[4] https://www.youtube.com/watch?v=pMwkM9GMMuI&feature=youtu.be

regional placement selections to add Eastern North Carolina, Charlotte, or the Piedmont Triad to their list of preferred regions.

We are also working hard to ensure that our current cohort of NCTC corps members, as well as our entire corps, is deepening their conviction and commitment to the state of North Carolina. To do this, we have identified three key areas of focus. These include:

- **Retention**: We seek to strengthen NCTC corps members' connections to North Carolina for the long-term and we are prioritizing strategies that build partnerships and provide access to career opportunities and networks in the state. While the focus of NCTC is on corps members with strong North Carolina ties, our goal is to retain corps members in education whether or not they have an existing connection to the state. As a result, NCTC sponsored events will be open to all corps members.
- **Amplify local solutions**: Our NCTC corps members will have the opportunity to share what is working in their communities with state and local leaders. We are working to implement several communications strategies (e.g., podcasts, webinars, blasts) to connect our corps members across regions and to spotlight North Carolina specific context, policy, and leaders. We held our first state-wide webinar on March 11.
- **Gather and analyze state-level data:** To build commitment from our first cohort of NCTC corps members, we are gathering input from them about our future programming. We have tagged our NCTC corps members so that we are able to accurately analyze their data. Our first round of data analysis indicated that 56% of NCTC corps members led an extracurricular activity at their school—over 15% higher than our non-NCTC corps members.

Regional Updates

We are grateful for the continued investment from the state which allows us to operate in three regions across North Carolina. This year, Teach For America, Eastern North Carolina celebrates its 25th year in the state, Charlotte sees its 10th anniversary, and the North Carolina Piedmont Triad launches its charter year. We look forward to many more years of partnership in the state serving North Carolina's students and families.

- North Carolina Piedmont Triad
  The North Carolina Piedmont Triad launched its charter year with 28 teachers in classrooms across Guilford County.

  Nafeesha Irby, the region's executive director, reflected on her ties to Greensboro in an article published in the Greensboro News & Record. Irby, a graduate of North Carolina A&T and the Northeast Leadership Academy, finds herself back in the city where she attended college and volunteered with the local Hayes-Taylor YMCA. She writes:

  > *In the years since (college), I've explored other parts of North Carolina — from Charlotte to rural Granville County — but my thoughts never ventured far from Greensboro. Last summer, my work with Teach For America brought me back, this time in the company of 28 TFA corps members — a few of our school system's newest educators. And whether they grew up here or came here for the first time, I've now had the pleasure of watching them fall in love, too — thanks once again to the students they have the good fortune to work with every day.*[5]

[5] Irby, Nafeesha. "Students Make This City Special." News and Record. BH Media Group Holdings, Inc, 21 Dec. 2014. Web. See Appendix F

- Eastern North Carolina
  Teach For America, Eastern North Carolina celebrates its 25th anniversary this year, marking a quarter century of partnerships with districts, schools, communities, families, and students across the region.

  Eastern North Carolina will be hosting a 25th anniversary summit on April 18th. The event will take place at the Friday Center in Chapel Hill. An estimated 300 people will attend including Teach For America's co-CEO Elisa Villanueva Beard.

  The goal of the summit is to increase awareness of rural educational excellence in Eastern North Carolina. The summit will engage corps members, alumni, donors, staff, and communities around Teach For America's work in Eastern North Carolina and is aimed at inspiring those constituents to form a deeper commitment to educational equity in the Eastern part of the state. We look forward to providing an update on the summit in our June quarterly report.

- Charlotte
  This year, Teach For America marks its 10th anniversary of partnering with the Charlotte community. After a decade in Charlotte, our partnership with the Charlotte Mecklenburg School District remains strong. We are pleased to report that in the third quarter, Charlotte Mecklenburg Schools completed an internal report studying student growth. The report found that teachers trained by Teach For America produced more academic growth than any other group evaluated.

Financial Reporting

Teach For America is committed to maximizing the state's investment through fiscal responsibility and working diligently to inspire private donors to invest in our work in North Carolina. For the last 12 years, Teach For America has received Charity Navigator's (the leading charity evaluator in America) four-star rating for sound fiscal management. Less than 1% percent of the charities rated by Charity Navigator have received 12 consecutive four-star evaluations. As such, Teach For America outperforms most U.S. charities in carrying out its mission in a fiscally responsible manner (see appendix G).

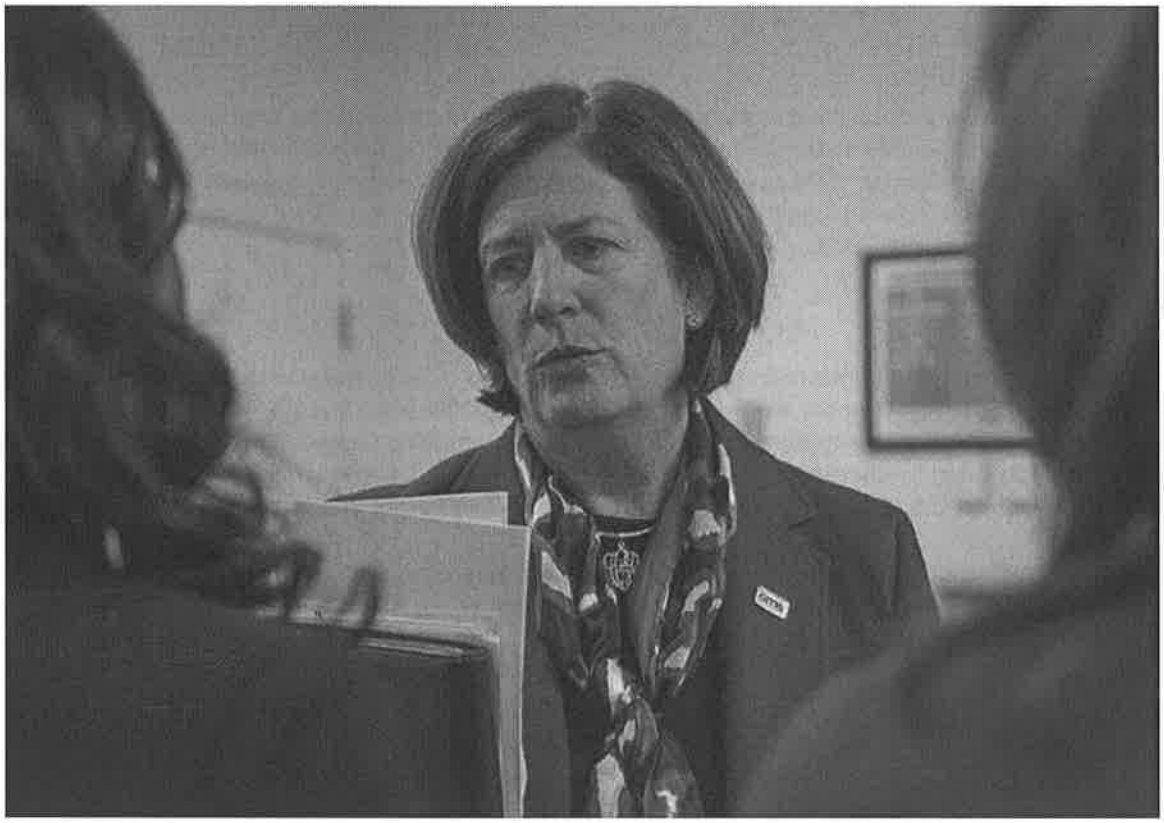
We remain grateful for the state's investment and are committed to making every public and private dollar work hard for students across our state. It remains a privilege to serve the communities of North Carolina with a spirit of urgency and diligence. We look forward to updating the state on our progress in our fourth quarter report in June, 2015.

Appendix A

What keeps the CMS superintendent up at night? Finding new teachers

BY ANDREW DUNN - ADUNN@CHARLOTTEOBSERVER.COM

02/11/2015 11:13 AM



Charlotte-Mecklenburg Schools Superintendent Ann Clark. MHAMES@CHARLOTTEOBSERVER.COM

Few things worry Charlotte-Mecklenburg Schools Superintendent Ann Clark more than whether the district will have the ability to fill classrooms with teachers in years to come.

As low pay and morale continue to discourage prospective teachers in North Carolina, the main pipeline into the teaching profession appears to be drying up, Clark said Wednesday at a forum hosted by the nonprofitMeckEd.

That's what keeps her up at night more than anything else, she said. And since teachers often move on to become principals and administrators, those positions are "in peril" as well, she said.

"If we don't turn that around, we are shooting ourselves in the foot in this profession," Clark said. "We have got to quickly think about how we attract the best and brightest to this state."

Related

CMS expanding 'opportunity culture,' a response to low teacher pay
Ruby Jones named newest Charlotte-Mecklenburg school board member

Clark said that two years ago, she would have given a different answer to the question of what keeps her up at night. She said she would have cited the growing number of impoverished students and persistently wide achievement gaps between white and minority students.

North Carolina lawmakers made a positive step in increasing pay for beginning teachers last summer, but Clark said there is more to be done.

The state legislature also ended the N.C. Teaching Fellows program in 2011. The popular training system had offered 500 high school seniors substantial scholarships to in-state colleges in exchange for four years of teaching after graduation.

Clark said the state needs to offer scholarships and opportunities that will attract talented people to the profession. She said that four years ago, North Carolina's public universities produced only a single physics teacher.

"We have to put our egos aside. We have to look at the data. We have to be realistic about what isn't happening," Clark said.

Charlotte-Mecklenburg Schools
Every Child. Every Day. For a Better Tomorrow.

Superintendent
600 E. Fourth Street, 5th Floor
Charlotte, NC 28202
980-343-1173

February 18, 2015

Dear Supporter and Friend,

After working with Charlotte-Mecklenburg Schools for more than 30 years, I have had the privilege of partnering with many non-profit partners who play a critical role in our success.

One of our closest partners continues to be Teach For America (TFA). For the last 10 years, TFA has helped address an urgent need in our schools and has provided a tremendous long-term return on our investment.

Rigorous research demonstrates that Teach For America's teachers are among the most effective teachers in our district. Every year, the program prepares exceptional teachers for our hardest to staff positions, many of which would otherwise go unfilled. Moreover, from the classroom teachers leading their students to outstanding results to the 18 TFA alumni now serving as principals and assistant principals in the district, their impact is essential.

Because of all this, I am proud to chair Teach For America's recently launched Corporate Cabinet – a program to help TFA expand and diversify its support among the corporations and foundations working for Charlotte's future. Together, we strive to raise $200,000 between now and the end of this school year – a critical investment that will allow Teach For America to continue to help our principals meet their need for diverse, outstanding talent.

I hope you will consider a meaningful corporate gift to support our efforts and one of the most critical needs that our district has today.

With gratitude,

Ann Clark

Ann Clark
Superintendent, Charlotte-Mecklenburg Schools
Co-Chair of Teach For America-Charlotte Corporate Cabinet

cc: **Teach For America-Charlotte Corporate Cabinet Members:**
Tim Hurley, Executive Director of Teach For America-Charlotte
Earl Bennett, Husqvarna
Kevon Makell, SEWW Energy
Jane Lewis-Raymond, Piedmont Natural Gas
Jim Sigman, Wells Fargo
Stick Williams, Duke Energy

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Because of all this, I am proud to publicly support Teach For America's efforts in our city and am working to help Teach For America expand and diversify its support among the corporations, foundations and individuals in our community who are invested in Charlotte's future. Together, we strive to raise $300,000 between now and the end of this school year – a critical investment that will allow Teach For America to continue to help our principals meet their need for diverse, outstanding talent.

I hope you will consider a meaningful personal gift to support our efforts and one of the most critical needs that our district has today.

With gratitude,

Ann Clark

Ann Clark
Superintendent, Charlotte-Mecklenburg Schools
Co-Chair of Teach For America-Charlotte Corporate Cabinet

STEM // Science, technology, engineering, & math education

THE STEM INITIATIVE

TEACHFORAMERICA

The STEM Initiative

Opening doors for the next generation of science, technology, engineering, and math innovators

A NATION'S INCREDIBLE OPPORTUNITY

By 2018, eight million jobs in the fields of science, technology, engineering, and math (STEM) will be available in the U.S. Unfortunately, the vast majority of our students will be unprepared to fill them.[1] This is because of a disparity of access to excellent STEM education programs, which disproportionately affects children of color and those from low-income communities. We have the incredible opportunity to provide these students with a high-quality STEM education that will open doors to success as innovators, pioneers, and whatever they can dream.

The root of the problem is in the quality of the math and science education in our schools, which threatens to leave entire groups of students without the skills needed for 21st-century jobs.

- Only 15% of low-income 4th graders are proficient in science[2]; By the time they graduate high school, many are not prepared to major in STEM in college
- Just 4% of underrepresented minorities graduate from U.S. high schools considered engineering eligible; as a result, just 3% of our engineering work force is black[3]

No child should have their life prospects limited by their access to education. Our country needs the diverse minds of all children to lead us into the future.

Research proves that high-quality teachers in STEM classrooms are critical to closing the gap, yet teaching positions in these fields remain empty each school year—specifically in low-income communities.

> Teach For America has become a national leader in recruiting and supporting STEM teachers that are making a real and measurable difference for kids everywhere. We're honored that they have taken a leadership role in 100Kin10.
>
> *– Talia Milgrom-Elcott,*
> *Program Officer, Carnegie Corporation of New York, and Founder, 100Kin10*

100KIN10

In 2011, 100Kin10 was launched with Teach For America as one of the founding organizations. The initiative was created in response to a nationwide call to action to prepare 100,000 new, excellent STEM teachers within the next 10 years. 100Kin10 includes more than 150 cross-sector organizations taking action in response to the crisis in STEM education.

60% of new jobs in the 21st century will require STEM skills possessed by only

20% of the current workforce

4% of underrepresented minorities graduate U.S. high schools considered engineering eligible

3% as a result, just of our engineering work force is black

more than **1/3** of our **11,000 +** corps members are teaching a STEM subject

since 2006, Teach For America's STEM corps has grown by over **290%** impacting 1.5 million students nationwide

1. The Center on Education and the Workforce. 2. Nation's report card http://www.timeandlearning.org/files/Strengthening-Science-Education-Full-Report.pdf 3. NACME 2008 Research Report: *Confronting the New American Dilemma, Underrepresented Minorities in Engineering: A Data-Driven Approach*

OUR APPROACH

In an effort to fill the need for effective STEM teachers and improve the quality of instruction students receive, Teach For America and the Amgen Foundation launched the Science, Technology, Engineering, and Math Initiative in 2006. Seven years later, we have grown to be one of the largest providers of math and science teachers in the country.

THE FOCUS OF OUR INITIATIVE IS THREEFOLD:

1 Expand Our Impact

Each year, Teach For America recruits thousands of diverse leaders to teach in classrooms and communities where they are needed the most. Under the STEM initiative, we focus on attracting exceptional individuals to lead math and science classrooms.

- Over 11,000 of the 57,000 applicants to the 2013 corps majored or minored in a STEM discipline
- More than one-third of our more than 11,000 corps members are teaching a STEM subject

To dramatically increase achievement, our students need the highest quality instruction—and teachers equipped to address the additional challenges that students growing up in poverty often face. Currently, our training and support program includes:

- Four to five weeks of rigorous training before entering the classroom
- A teacher coach who provides year-round, content-specific support, tools, and resources
- Year-round targeted professional development sessions
- Leading-edge professional development, including online content communities and training modules, tailored to the specific needs of STEM classrooms

Research indicates we are succeeding in STEM classrooms:
A 2012 gold-standard Mathematica Policy Research study commissioned by the Department of Education found that on average, Teach For America secondary math teachers added 2.6 months of learning over one school year

For additional information on our impact, please visit www.teachforamerica.org/research

2 Strengthen Our Collective Work

Teach For America is proud to work in partnership with many organizations to improve the quality of STEM education in our nation's highest needs classrooms. Engineering is Elementary ran a professional development workshop for corps members in Baltimore, NASA's Education Program worked with a group of secondary science corps members in Los Angeles, and many of our corps members and alumni are utilizing curricular resources provided by many organizations like Project Lead The Way and Mathalicious. Our teachers also take initiative, reaching out to community allies to open opportunities to their students. **Victoria Ramirez (Bay Area 2011)** fund raised to bring retired astronaut José Hernandez to talks to her first-graders – in a school with no money for field trips or speakers – about Latinos in STEM careers.

PROJECT LEAD THE WAY PLTW
Preparing students for the global economy

mathalicious

EiE Engineering is Elementary.
Developed by the Museum of Science, Boston

3 Cultivate Life-Long Leaders

Our corps members witness the disparities their students face and become committed to make a difference.

In the classroom:

The majority of our more than 10,000 STEM corps members remain in education after their first two years in the classroom:

Michelle Verrochi (South Dakota 2009)

A neuroscience major turned Rosebud Reservation teacher, Michelle instituted Project Lead The Way's Biomedical Science Program at her at her high school, which prepares students for college with a rigorous project-based curriculum.
The program's first cohort graduates this year and will enter college with the confidence and ability to reach their ambitious career goals.

Alumni Teachers as Innovators

Just because they're not in a laboratory doesn't mean teachers aren't spearheading the innovations that will move our country forward. Not only are they training the next generation to navigate ambiguity, think analytically, and act strategically – thus they're also pioneering cutting-edge education methods themselves. Irene Hsieh (Metro DC '11) is helping create a healthy living curriculum that has kids as young as six planting community gardens, mapping nutrition access in their city, and writing letters to their Congressmen.

STEM teachers are taking the societal challenges they've encountered while teaching and tackling them head on. For STEM enthusiasts who want to change the world through innovation, there couldn't be a better place to start than the classroom.

In education broadly:

Many of our teachers take on school leadership positions after teaching — expanding their reach to even more students. Some with STEM backgrounds are using technology to create and lead innovative schools:

Paul Powell (Los Angeles 2003), Founding Principal, Troy Prep

Paul Powell is the founding principal of True North Prep. Last year, 100% of their seventh graders scored proficient or above in math. Before leading Troy Prep, Paul experienced leadership at all levels of education, from a math teacher at LA's Locke Senior High, to a program director at Teach For America, to a resident principal with True North.

Allison Scheff (GNO 2003) Executive Director of STEM and the Governor's STEM Advisory Council, MA Department of Higher Education

Allison Scheff (GNO '03) was recently hired as the executive director of STEM at the Massachusetts Department of Higher Education to lead the Commonwealth's interagency Pre-K through workforce STEM initiative. In this role, she will also be staffing the Governor's STEM Advisory Council, which is led by honorary chair Congressman Joseph P. Kennedy, III. Allison previously held a position at the University of Massachusetts-Boston, where she was the Associate Director for the Center of Science and Math in Context.

From all other sectors:

Our teachers see first-hand the additional challenges our students, families, and communities face and use their STEM talents to address these challenges in fields such as healthcare and social entrepreneurship:

Mark Wilcox (Baltimore 2009), Tyler Mains (Baltimore 2009) and Shyam Gadwal (Baltimore 2006), Co-Founders, MERIT

Amgen Fellows Mark, Tyler, and Shyam created Medical Education Resources Initiative for Teens, or MERIT, a community program that provides intensive academic support and mentoring to young scientists in Baltimore, with a focus on creating a pipeline of future leaders dedicated to eliminating healthcare disparities. They currently have about a hundred volunteers and almost 60 students involved in one of their programs, with students from the founding 2010 cohort now pursuing STEM majors in top colleges.

> "We are working to solve health issues faced by low-income communities, and we think it's critical to empower future leaders from those communities"
>
> *– Mark Wilcox, Baltimore '09*

Spotlight on Computer Science Education

In partnership with the National Science Foundation, the NYC Department of Education, and Dr. Elizabeth Jaffe, Presidential Awardee for Math and Science Teaching, Teach For America will be placing, training, and supporting up to ten computer science teachers in New York City during the 2013-2014 school year. In addition to placing computer science teachers in NYC, many of our alumni leaders are working to expand computer science in their regions. Maurva Couvares and Elizabeth Davidson (both Philadelphia '06) started ScriptEd NYC, a new non-profit attempting to bridge the "digital divide" and teach students in underserved areas the computer science skills they need to land jobs in this high-tech economy.

Spotlight on Amgen Fellows

Amgen Fellowships are offered to accepted applicants who most exemplify the characteristics Teach For America looks for in its corps members: achievement, perseverance, critical thinking, organizational ability, ability to influence and motivate others, respect for low-income communities, and fit with our mission. Each year, 100 exceptional incoming STEM corps members are offered the reward of a signing bonus and are eligible to receive grants which provide them with the resources and professional development needed to be more effective and innovative STEM educators. To-date, we have trained and supported 550 Amgen Fellows.

AMGEN

To learn more, visit www.teachforamerica.org/STEM &
follow our STEM Initiative on Twitter @TFA_STEM and Instagram at #iteachSTEM
STEM@teachforamerica.org

UNC Teacher Quality Research: Teacher Portals Effectiveness Report

May 2014

Authors:

Kristina M. Patterson
Kevin C. Bastian

EDUCATION POLICY
INITIATIVE *at* CAROLINA

Acknowledgements

We wish to recognize Alisa Chapman with the University of North Carolina General Administration for her vital contributions in providing data and working as a partner throughout the research and dissemination processes. We also thank the North Carolina Department of Public Instruction, Teach For America, and Visiting International Faculty for providing necessary data for our analyses.

We wish to thank the deans and department heads from the colleges, schools and departments of education at the 15 UNC institutions engaged in teacher education for their valuable input during the development of the models and discussions of the findings. We gratefully acknowledge the many contributions made by our current and former researchers and fellows at the Education Policy Initiative at Carolina (EPIC), including Gary T. Henry, Charles L. Thompson, C. Kevin Fortner, Kelly M. Purtell, David C. Kershaw, Shanyce L. Campbell, and Rebecca A. Zulli.

We also wish to recognize Samuel N'tsua, EPIC data manager, for his contribution in data cleaning, verification, and dataset builds. We gratefully acknowledge the contribution of Elizabeth D'Amico as executive editor, ensuring accuracy and consistency of the report content, as well as final production. All authors accept responsibility for any remaining errors in the report.

Table of Contents

Executive Summary of Findings

The purpose of this report is to compare the relative effectiveness, evaluation ratings, and persistence of early-career teachers in North Carolina public schools who entered the teaching profession through different routes of preparation or "portals." In the body of this report we detail our teacher portal categories, data and sample, research methods, and results. Below, we summarize our findings for five policy relevant teacher portals.

UNC Undergraduate Prepared: Teachers traditionally prepared at the undergraduate level by UNC system institutions are the largest source of teachers in North Carolina public schools—33% of the teacher workforce in 2011-12—and the most likely group to remain in the state's public school classrooms—76% return for a fifth year of teaching. In comparison to other sources of teachers, UNC traditionally prepared undergraduates are significantly more effective in 12 value-added comparisons, significantly less effective in 15 value-added comparisons, and perform no differently in 67 value-added comparisons.[1] It is important to note that UNC undergraduate prepared teachers outperformed teachers from the largest suppliers of North Carolina public school teachers (e.g. out-of-state undergraduate, alternative entry, and NC private undergraduate prepared teachers), while underperforming considerably smaller portals (e.g. Teach For America). UNC undergraduate prepared teachers have similar odds of being rated above proficient (accomplished or distinguished) as teachers from most other portals on all five North Carolina Professional Teaching Standards.

NC Private Undergraduate Prepared: Teachers traditionally prepared at the undergraduate level by private or independent colleges or universities in North Carolina are the 4th largest source of teachers in North Carolina public schools—12% of the teacher workforce in 2011-12—and persist at similar rates to UNC undergraduate prepared teachers—76% return for a fifth year of teaching. In comparison to UNC undergraduate prepared teachers, NC private undergraduate prepared teachers are significantly less effective in 3 value-added comparisons and no different in 8 value-added comparisons. NC private undergraduates have similar odds of being rated above proficient on all five North Carolina Professional Teaching Standards as UNC undergraduate prepared teachers.

Out-of-State Undergraduate Prepared: Teachers traditionally prepared at the undergraduate level at a college or university outside of North Carolina are the 2nd largest source of teachers in North Carolina public schools—23% of the teacher workforce in 2011-12—and demonstrate significantly lower persistence rates than UNC undergraduate prepared teachers—58% return for a fifth year of teaching. In comparison to UNC undergraduate prepared teachers, out-of-state undergraduate prepared teachers are significantly less effective in 4 value-added comparisons and no different in 7 value-added comparisons. Out-of-State undergraduate prepared teachers have similar odds of being rated above proficient as UNC undergraduate prepared teachers on all five North Carolina Professional Teaching Standards.

Teach For America: Teachers entering the teaching profession through Teach For America (TFA) are the smallest source of teachers in North Carolina public schools—0.50% of the teacher workforce in 2011-12—and demonstrate significantly lower persistence rates than UNC undergraduate prepared teachers—approximately 10% return for a fifth year of teaching. On average, TFA corps members

[1] UNC traditionally prepared undergraduates are our reference group for value-added analyses. In total, across our elementary, middle, and high school value-added models, there are a total of 94 effectiveness comparisons between UNC undergraduate prepared teachers and teachers from other preparation portals.

are the most effective source of early-career teachers in North Carolina public schools, significantly outperforming UNC undergraduate prepared teachers in 9 value-added comparisons and performing no differently in 2 value-added comparisons. In comparison to UNC undergraduate prepared teachers, TFA corps members have significantly greater odds of being rated above proficient on all five North Carolina Professional Teaching Standards.

Alternative Entry: Teachers entering the teaching profession prior to completing all requirements for initial licensure are the 3rd largest source of teachers in North Carolina public schools—15% of the teacher workforce in 2011-12—and demonstrate significantly lower persistence rates than UNC undergraduate prepared teachers—approximately 56% return for a fifth year of teaching. In comparison to UNC undergraduate prepared teachers, alternative entry teachers are significantly less effective in 3 value-added comparisons and no different in 8 value-added comparisons. Alternative entry teachers have significantly lower odds of being rated above proficient than UNC undergraduate prepared teachers on all five North Carolina Professional Teaching Standards.

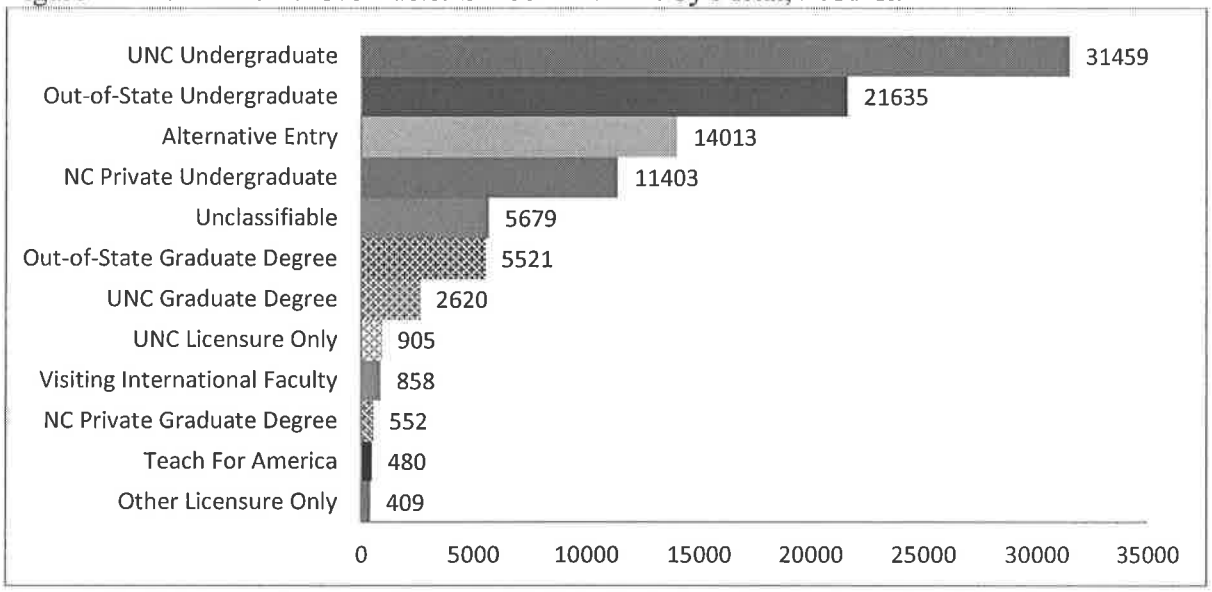
Introduction

The proliferation of teacher preparation routes over the last several decades has sparked the following research question: Are teachers from some preparation sources more effective and more persistent than teachers entering the profession through other preparation sources (Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2006; Boyd, Goldhaber, Lankford, & Wyckoff, 2007; Henry, Purtell, Bastian, Fortner, Thompson, Campbell, & Patterson, 2014; Kane, Rockoff, & Staiger, 2008)? To address this question, the purpose of this report is to compare the relative effectiveness, evaluation ratings, and persistence of early-career teachers in North Carolina public schools who entered teaching through one of eleven different routes of preparation or "portals." As the largest source of teachers in North Carolina public schools, and in response to the UNC system's commitment to evaluate and strengthen their teacher preparation programs, in this report we benchmark the performance of teachers traditionally prepared at the undergraduate level by UNC system institutions against that of teachers entering the profession through one of ten additional entry portals. Results from these analyses can provide state officials with evidence to better structure teacher licensure/certification policy and aid school districts with teacher recruitment and hiring. Furthermore, findings may encourage teacher preparation programs to identify, adopt, and evaluate evidence-based program improvements.

To consider the impact of a teacher portal on K-12 education in North Carolina, it is important to consider not only the performance and persistence of teachers who are prepared through this portal, but also, the number of teachers who enter the profession through the portal. Portals with large numbers of teachers can have a greater impact (positive or negative) on student performance and on the state's teacher workforce than portals that prepare fewer teachers. In Figure 1, we display the total number of North Carolina public school teachers, employed in 2011-12, that entered the teaching profession through each of the 11 teaching portals. Overall, the UNC system—the undergraduate, graduate, and licensure only levels—supplied nearly 37% of the state's teacher workforce and North Carolina private or independent colleges and universities supplied approximately 12.5% of the teacher workforce. Teachers prepared outside North Carolina, at the undergraduate, graduate, or licensure only levels, comprised over 28% of the workforce in 2011-12.[2] Nearly 15% of the state's workforce entered the profession alternatively, meaning they originally began teaching prior to completing all requirements for initial licensure. Teach For America (TFA) corps members receive frequent policy and media attention, yet comprise approximately 0.50% of the state's teacher workforce. Finally, the data needed to accurately assign teachers to a portal was missing for approximately 6% of the workforce and we assigned them to an unclassifiable category.

[2] See "Teachers Without Borders: Consequences of Teacher Labor Force Mobility" (forthcoming in *Educational Evaluation and Policy Analysis*) for more details on out-of-state prepared teachers.

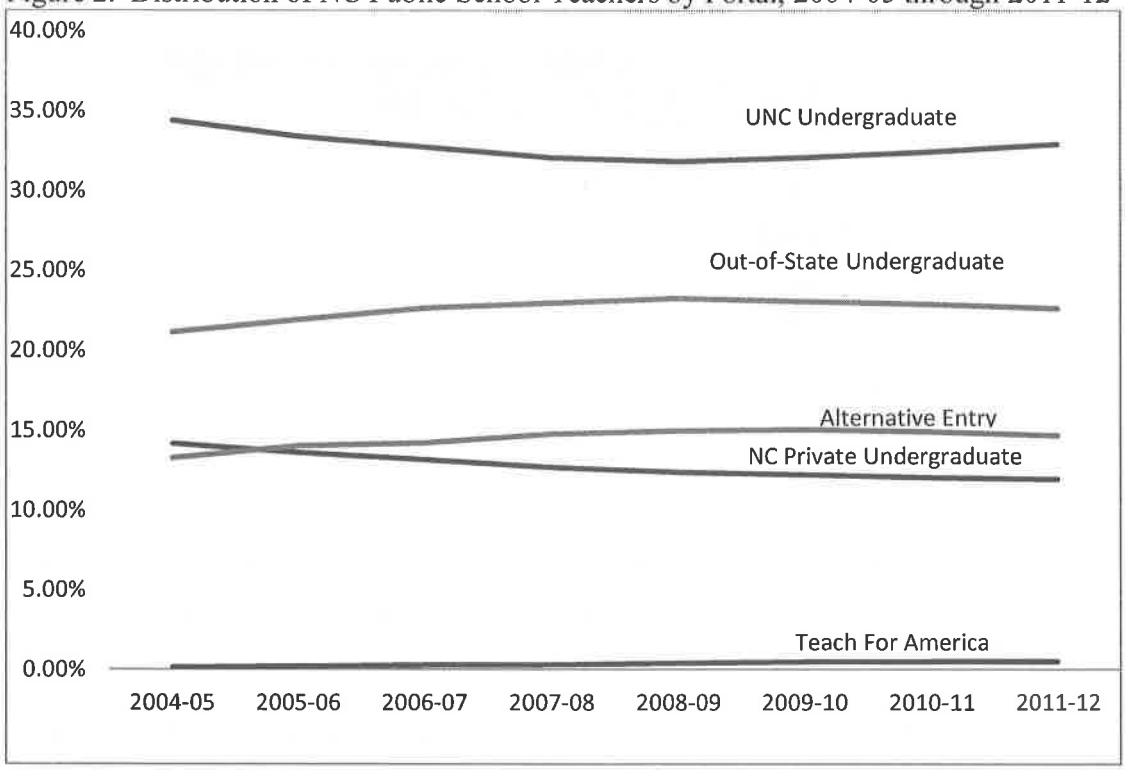
Figure 1. Distribution of NC Public School Teachers by Portal, 2011-12



Note: In the 2011-12 academic year there were 95,534 individuals paid as teachers in North Carolina public schools. This figure displays the teacher portals arranged from largest (top) to smallest (bottom).

To complement the static values shown in Figure 1, Figure 2 (below) displays trends in the distribution of teachers to portals over the period of 2004-05 through 2011-12 for five policy relevant portals. In the figure's initial years, the share of in-state traditionally prepared undergraduates (public and private university) declined as the share of out-of-state prepared undergraduates and alternative entry teachers increased. More recently, the percentage of UNC undergraduate prepared teachers has increased as the share of out-of-state prepared undergraduates and alternative entry teachers has leveled off. While still supplying a small percentage of the state's teacher workforce (approximately 0.50%), TFA has grown considerably in North Carolina since 2004-05. Due to the recent increase in funding for TFA by the North Carolina General Assembly, this portal will continue to grow over the next few years.

Figure 2. Distribution of NC Public School Teachers by Portal, 2004-05 through 2011-12



Note: This figure displays the percentage of teachers in five policy relevant portal categories from the 2004-05 through 2011-12 academic years.

Background

This report, produced in collaboration with the UNC General Administration, presents the third[3] set of results assessing the performance of teachers entering the profession through different routes or portals. The UNC General Administration commissioned this research agenda in 2009 in an effort to better understand the composition of the teacher workforce in North Carolina and to quantify the impact of UNC traditional teacher preparation programs on student achievement.

To assess the effectiveness of UNC system prepared teachers, as compared to teachers from other sources, we classify public school teachers in North Carolina into one of eleven categories, which we refer to as portals. A portal is a fixed and exclusive category that captures a teacher's preparation upon first entering the profession, with assignment to a portal based on the highest degree earned, set of courses completed, or other preparation that an individual acquired before becoming a classroom teacher. A teacher who entered through the alternative entry portal, for example, may eventually complete all licensure requirements and become fully certified, however, for the purpose of this study, she would continue to be classified as alternative entry since that reflects her qualifications when beginning teaching.

Four questions guided our classification of teachers into portals. First, was the teacher fully qualified—that is, had she met all requirements for initial licensure—when she became a classroom teacher for the first time? Second, if so, was her qualification based on a set of education-related courses taken in the process of earning an undergraduate or graduate degree or through a program that terminated with a licensure/certificate only? Third, what was the highest level of degree—undergraduate or graduate—that she held when first entering the teaching profession? Finally, if fully qualified, from what type of institution did she earn the degree or teaching license: UNC system, NC private college or university, or an out-of-state university? Based on answers to these questions, we created eleven mutually exclusive categories that capture the portal through which an individual entered the teaching profession.[4] Our eleven portals are as follows: UNC undergraduate prepared, UNC graduate prepared, NC private undergraduate prepared, NC private graduate prepared, out-of-state undergraduate prepared, out-of-state graduate prepared, UNC licensure only, out-of-state licensure only, Teach For America, Visiting International Faculty, and alternative entry (see Table 1 for definitions of each portal).

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[3] See Henry, G.T., Thompson, C.L., Bastian, K.C., Fortner, C.K., Kershaw, D.C., Purtell, K.M., and Zulli, R.A. (2010). *Portal Report: Teacher Preparation and Student Test Scores in North Carolina*. Chapel Hill, NC: Education Policy Initiative at Carolina. Available online at: http://publicpolicy.unc.edu/files/2014/02/Portal_TeachPrep-TestScore_June2010_Final.pdf and Education Policy Initiative at Carolina. (2012). *UNC Teacher Quality Research: Teacher Portals Effectiveness Analysis*. Chapel Hill, NC: Education Policy Initiative at Carolina. Available online at: http://publicpolicy.unc.edu/files/2014/02/PortalsEffectivenessReport_2012.pdf

[4] There is one additional category containing individuals who cannot be classified, based on available data, into any of these 11 entry portals. We retain these unclassifiable teachers in our analyses but do not present their results in this report.

Table 1. Portal Definitions

Teacher Portal	Definition
UNC Undergraduate Prepared	A North Carolina public school teacher who completed the requirements for initial licensure at a University of North Carolina system institution by earning (a) a Bachelor's degree in education or (b) a Bachelor's degree in another major while simultaneously completing the required education-related coursework, before beginning teaching.
UNC Graduate Prepared	A North Carolina public school teacher who earned a graduate degree from a UNC system institution and qualified for an initial license before beginning teaching.
NC Private Undergraduate Prepared	A North Carolina public school teacher who completed the requirements for initial licensure at a private or independent institution in North Carolina by earning (a) a Bachelor's degree in education or (b) a Bachelor's degree in another major while simultaneously completing the required education-related coursework, before beginning teaching.
NC Private Graduate Prepared	A North Carolina public school teacher who earned a graduate degree from a private or independent North Carolina institution and qualified for an initial license before beginning teaching.
Out-of-State Undergraduate Prepared	A North Carolina public school teacher who completed the requirements for initial licensure at an institution outside of North Carolina by earning a Bachelor's degree in education before beginning teaching.
Out-of-State Graduate Prepared	A North Carolina public school teacher who earned a graduate degree from a university outside of North Carolina and qualified for an initial license before beginning teaching.
UNC Licensure Only	A North Carolina public school teacher who, after earning a Bachelor's degree at any public or private institution in any state, then separately completed the education-related coursework required for teacher licensure at a UNC system institution, before beginning teaching.
Out-of-State Licensure Only	A North Carolina public school teacher who, after earning a Bachelor's degree at any public or private institution in any state, then separately completed the education-related coursework required for teacher licensure at a university outside of North Carolina, before beginning teaching.
Teach For America	A North Carolina public school teacher who entered teaching through Teach For America.
Visiting International Faculty	A North Carolina public school teacher who entered teaching through the Visiting International Faculty program.
Alternative Entry	A North Carolina public school teacher who entered the profession prior to completing requirements for initial licensure (Teach For America corps members excluded).

In order to classify teachers into the appropriate portal, we used administrative data from four sources. First, we used data from the UNC General Administration to identify teachers prepared by the UNC system at the undergraduate, graduate, or licensure only level. Second, TFA provided us

with identifiers for their corps members in North Carolina. Third, the Visiting International Faculty (VIF) program supplied data identifying their teachers in the state. We classified TFA and VIF teachers into separate portals, rather than the alternative entry portal, because a primary goal of the portals is to create finer-grained categories to better account for the diversity in teacher preparation experiences. Finally, we used teacher education, licensure audit, and certified salary files from the NCDPI. From these data sets we determined when an individual began teaching, the basis for an individual's first teaching license(s), and an individual's graduation year, degree type, and degree granting institution (UNC system, NC private or independent college or university, or out-of-state). If a teacher earned multiple degrees prior to entering the profession, we categorized her according to the degree most proximate to beginning teaching. We placed a teacher into the unclassifiable category for three reasons: (1) her college graduation year is missing from the data (2) her highest degree earned prior to entering the classroom was less than a Bachelor's degree or (3) the NCDPI data indicate that she was teaching more than one year prior to her graduation year. For a more complete description of specific data sources and portal decision rules, see Table A.3 in the Appendix.

For teachers with less than five years experience in the 2011-12 academic year, Table 2 presents individual and school characteristics for five policy relevant portals. Regarding individual teacher characteristics, Table 2 indicates that UNC undergraduate, NC private undergraduate, and out-of-state undergraduate prepared teachers are comparable across many characteristics. However, in comparison to these traditionally prepared portals: (1) Teach For America corps members are younger and score higher on licensure exams and are more likely to teach a tested-grade or subject, work in a middle or high school, and hold a math, reading/English, or science teaching license and (2) alternative entry teachers are more likely to be male and a racial/ethnic minority, are older, score lower on licensure exams, and are more likely to work in a middle or high school and hold a science, career-technical, or exceptional children teaching license. For school characteristics, Table 2 shows that teachers entering through a traditionally prepared undergraduate portal work in comparable environments, while TFA corps members work in lower-performing schools with higher concentrations of minority and free and reduced-price lunch students.

Table 2: Individual and Workplace Characteristics for Early-Career Teachers

Characteristic	UNC Under Grad	NC Private Under Grad	Out-of-State Under Grad	TFA	Alternative Entry
Individual Teacher Characteristics					
Female Percentage	82.52	86.02	77.96	79.46	69.89
Minority Percentage	15.74	11.11	10.34	19.36	34.86
Age in 2011	27.29	29.65	29.80	23.72	33.94
Teaching Experience	1.81	1.95	2.17	1.02	2.46
Test Average Post (std.)	0.255	0.231	0.280	0.467	0.106
Tested Subject Percentage	31.89	31.95	36.46	55.68	32.79
Teaching Licenses Percentages					
Pre-K	2.89	2.79	11.46	0.66	2.10
Elementary	52.29	62.66	57.37	21.83	9.54
Math	12.61	9.55	13.68	24.23	13.97
Reading/English	19.46	13.69	23.34	26.64	16.81
Science	7.55	4.94	10.89	23.14	17.21
Social Studies	11.39	8.16	15.31	10.48	11.54
Foreign Language	1.24	1.55	2.43	3.71	5.19
Arts	6.64	5.09	5.76	0.66	5.52
PE/Health	5.06	6.17	4.65	0.44	5.12
Career-Technical	3.71	2.31	3.47	0.00	14.45
Exceptional Children	10.59	12.26	13.73	10.70	18.04
School Level Percentages					
Elem. & Elem/MS Combination	57.58	64.89	56.04	25.77	21.40
Middle School	17.80	15.09	22.22	30.57	29.87
High School	23.97	19.63	21.16	43.23	47.22
K-12	0.65	0.40	0.57	0.44	1.51
School Characteristics					
School Performance Composite	76.09	76.09	75.88	66.15	74.27
School Minority Percentage	50.74	47.44	55.99	88.85	57.44
School FRL Percentage	61.18	62.01	58.27	76.80	61.23

Note: For teachers with less than five years experience in the 2011-12 academic year, this table displays individual teacher and workplace characteristics for five policy relevant portals.

Data and Methods

The purpose of this study is to examine the relationship between teachers' preparation prior to entering the profession and three measures of teacher quality. Specifically, we estimate teacher quality in terms of teacher value-added to student achievement, teacher evaluation ratings, and teacher persistence in North Carolina public schools. These multiple outcomes allow us to assess a range of ways in which teachers impact education and examine the effects of teacher preparation for a broader sample—not just tested-grade/subject—of early-career teachers. For all of our analyses, the results for each teacher portal capture the impact of both selection into the teacher portal and the quality of preparation provided by that portal. For each of our outcomes of interest, we detail our analysis sample, covariates, and research methods below.

Value-Added Models

For our value-added analyses we use student, classroom, and school data for public schools in North Carolina from the 2007-08 through 2011-12 academic years. We restrict our analysis sample to teachers with less than five years of experience for two reasons: 1) the quality of teacher preparation portals/programs may change over time and 2) the effects of a teacher's preparation will likely diminish over time as a teacher learns from classroom experience, principal and peer feedback, and other professional development. The outcome variable for these analyses is students' test score performance on the North Carolina End-of-Grade (EOG) or End-of-Course (EOC) exams. We standardize all EOG tests within subject, grade, and year and all EOC tests within subject and year to remove secular trends in the data. For our analyses we separate the data into 11 grade-level/subject combinations: three models for EOG exams in elementary grades (4-5)—mathematics, reading, and fifth grade science[5]; three models for EOG exams in middle grades (6-8)—mathematics, reading, and eighth grade science; one model for an EOC exam in middle grades—algebra I—and four models for EOC exams in high school grades (9-12)—mathematics (algebra I, algebra II, and geometry), English 1, science (biology and physical science), and social studies (U.S. history and civics/economics). In elementary grades, student test score data are available for all five years for mathematics and reading and from 2008-09 through 2011-12 for fifth grade science. In middle grades, student test score data are available for all five years for each subject. Finally, in high school grades, student test score data are available for all five years for algebra I, English 1, and biology; from 2007-08 through 2010-11 for algebra II, U.S. history, civics/economics, and physical science; and from 2007-08 through 2009-10 for geometry. Overall, we estimate models using 2.9 million student test score records from 1.4 million students taught by 28,223 North Carolina public school teachers with less than five years of experience.[6]

We include extensive student, classroom, and school level control variables, as well as a limited set of teacher controls (years of experience and out-of-field teaching) to isolate the effect of the teacher preparation portals on adjusted-average student achievement gains. Table 3 displays a complete list of covariates included in our value-added models. The definitions for three of the variables may not be obvious: structural mobility refers to students who changed schools due to the grade range of a school (e.g. 6th grade students in a 6th-8th grade middle school), between-year mobility refers to students who attended or tested at a different school in the prior academic year (excluding structural movers), and within-year mobility refers to students who were enrolled in the school in which they took their EOG/EOC exams for less than the full school year.

[5] After the 2008-09 school year North Carolina stopped administering the 3rd grade EOG pre-test. Therefore, we include 3rd grade students in our value-added analyses for the 2007-08 and 2008-09 years only.

[6] We only report value-added estimates for teacher portals with at least ten teachers in a given subject/grade-level analysis.

Table 3: Value-Added Model Control Variables

Student	Classroom & Teacher	School
1. Prior test scores (reading & math) 2. Classmates prior test scores (peer effects) 3. Days absent 4. Structural mobility 5. Between-year mobility 6. Within-year mobility 7. Gender 8. Race/ethnicity 9. Poverty 10. Gifted 11. Disabled 12. Currently limited English proficient 13. Previously limited English proficient 14. Overage for grade (held back or retained at least once) 15. Underage for grade (promoted two grades)	16. Years of experience 17. Teaching out-of-field 18. Number of students 19. Advanced curriculum (MS and HS only) 20. Remedial curriculum (MS & HS only) 21. Dispersion of prior achievement within classroom	22. School size (ADM) 23. School size squared 24. Suspension rate 25. Violent acts rate 26. Total per pupil expenditures 27. District teacher supplements 28. Racial/ethnic composition 29. Concentration of poverty

To estimate adjusted-average portal effectiveness, our preferred estimation approach is a three-level hierarchical linear model (HLM) that accounts for the nesting of students within classrooms and classrooms within schools. Estimates of portal effects are based on comparisons with the reference group, UNC undergraduate prepared teachers. For each of our 11 value-added models, the equation used to estimate the average effect of the teacher portal is as follows:

$$Y_{ijst} = \gamma_0 + \gamma_1 Test_{it-n} + \beta_1 Portal_2 + \cdots + \beta_{11} Portal_{12} + \gamma Student_{ijs} + \beta Classroom_{js} + \delta School_s + \mu_i + \varepsilon_j + \theta_s \quad (1)$$

Where Y_{ijst} represents student i's test score in classroom j in school s at time t;

$Test_{it-n}$ represents a student's prior scores on the End of Grade tests;

$Student_{ijs}$ represents a set of individual student controls;

$Classroom_{js}$ represents a set of classroom level and teacher controls;

$School_s$ represents a set of school level controls;

and μ_i , ε_j, and θ_s represent unexplained variation at the student, classroom, and school levels, respectively.

The model coefficients $\beta_1 - \beta_{11}$ provide estimates of the average difference in student achievement between teachers trained in traditional UNC undergraduate teacher preparation programs and teachers prepared through the specified portal.

Although our models control for a rich set of school characteristics, there may be unobserved aspects of school context, such as principal leadership or a school's ability to attract high-quality teachers, that affect student achievement and the preparation (portal) of teachers working at the school (Boyd, Grossman, Ing, Lankford, & Loeb, 2011; Kennedy, 2010; Loeb, Kalogrides, & Beteille, 2012). Therefore, in addition to our preferred approach (equation 1), which estimates the relationship between teacher portals and student achievement, statewide, we estimated supplementary models that limit effectiveness comparisons to teachers working in the same school.[7] Results from these supplementary models are displayed in Tables A.5, A.6, and A.7 in the Appendix.

Teacher Evaluation Ratings

Since many important aspects of teaching quality, such as assuming school leadership roles and reflecting on practice, may not be well-captured by value-added estimates and only a minority of North Carolina public school teachers teach in a tested-grade or subject-area, we complement our value-added analyses with an analysis of teacher evaluation ratings. Specifically, we examine whether teachers entering the profession through certain teacher portals earn higher evaluation ratings than those entering from a different portal. For these analyses we limit our sample to teachers with less than five years of experience and focus on teacher evaluation ratings from the 2010-11 and 2011-12 academic years. We use teachers' evaluation ratings to create a binary outcome variable of rating "above proficient"—a rating of either accomplished or distinguished—for Standards 1-5 of the North Carolina Professional Teaching Standards (NCPTS).[8] To assess whether the odds of rating above proficient significantly differ across teacher portals, we specify a logistic regression controlling for teacher portals (in reference to UNC undergraduate prepared teachers), teacher experience, and a set of school contextual factors and we cluster-adjust standard errors at the school-by-year level to account for dependence in the data. For each NCPTS, the equation to estimate the comparative odds of rating above proficient is as follows:

$$\Pr(Above\_Proficient_{jst} = 1) = \frac{\exp(Portal_j + Experience_{jt} + School_{jt})}{1 + \exp(Portal_j + Experience_{jt} + School_{jt})} \quad (2)$$

where $Above\_Proficient_{jst}$ is a binary outcome equal to 1 for teacher j and evaluation standard s at time t if the school principal rated the teacher as accomplished or distinguished;

[7] In addition to limiting value-added comparisons to teachers working in the same school, these school fixed effects exclude observations for schools that (1) only employ UNC undergraduate prepared teachers or (2) do not employ any UNC undergraduate prepared teachers.

[8] Please see http://www.ncpublicschools.org/docs/effectiveness-model/ncees/instruments/teach-eval-manual.pdf for more information about the teacher evaluation process and standards in North Carolina. The five NCPTS are as follows: Standard 1—Teachers Demonstrate Leadership; Standard 2—Teachers Establish a Respectful Environment for a Diverse Population of Students; Standard 3—Teachers Know the Content They Teach; Standard 4—Teachers Facilitate Learning for Their Students; and Standard 5—Teachers Reflect on Their Practice.

$Portal_j$ represents a set of binary teacher portal variables in reference to UNC undergraduate prepared teachers;

$Experience_{jt}$ represents a set of single-year teacher experience indicators in reference to first year teachers;

and $School_{jt}$ represents a set of school contextual factors.

While these models control for a rich set of school characteristics to better isolate the relationship between teacher portals and evaluation ratings, there are unobserved school characteristics, such as a school's ability to attract high-quality teachers or differences in the rating tendencies of principals, which may influence evaluation ratings (Boyd, Grossman, Ing, Lankford, & Loeb, 2011; Kennedy, 2010; Loeb, Kalogrides, & Beteille, 2012; Whitehurst, Chingos, & Lindquist, 2014). Therefore, in addition to our preferred approach (equation 2), which estimates the relationship between teacher portals and evaluation ratings, statewide, we specify a logistic regression with school-by-year fixed effects that limits evaluation rating comparisons to teachers working in the same school and year.[9] For the results of these fixed effects models, see Table A.8 in the Appendix.

Teacher Persistence

Because it is costly to hire and train new teachers and teacher turnover may adversely affect school stability and student achievement, we assess whether teachers entering the profession through certain portals remain teaching in North Carolina public schools longer than their peers from other portals (Alliance for Excellent Education, 2004; Ronfeldt, Loeb, & Wyckoff, 2013). For this analysis we identified four cohorts of first-time teachers in the 2005-06, 2006-07, 2007-08, and 2008-09 academic years and used salary data provided by the NCDPI to track the percentage of each cohort that persists as teachers in North Carolina public schools over a three and five year period. We then used independent sample t-tests to determine whether a given portal's persistence rates significantly differ from those of UNC undergraduate prepared teachers. These results do not adjust for teacher or school characteristics that may influence teacher persistence, but rather, provide an unadjusted measure of retention in North Carolina public schools.

[9] In addition to limiting evaluation rating comparisons to teachers working in the same school-year, these school-year fixed effects exclude observations for schools that (1) only employ UNC undergraduate prepared teachers or (2) do not employ any UNC undergraduate prepared teachers.

Findings

UNC Undergraduate Prepared Teachers

The primary motivation for this research is to assess how UNC undergraduate prepared teachers perform in comparison to teachers who entered the profession through each of the 10 other portals. Overall, we found that UNC undergraduate prepared teachers significantly outperform teachers from other portals in 12 comparisons, significantly underperform teachers from other portals in 15 comparisons, and perform similarly to teachers from other portals in 67 comparisons. It is important to note that UNC undergraduate prepared teachers outperformed teachers from the largest suppliers of North Carolina public school teachers (e.g. out-of-state undergraduate, alternative entry, and NC private undergraduate prepared teachers), while underperforming considerably smaller portals (e.g. TFA). For example, in high school mathematics UNC undergraduate prepared teachers outperformed out-of-state undergraduate, VIF, and alternative entry teachers, who comprise 67 percent of the non-UNC undergraduate teachers in the high school mathematics analysis, while they underperformed UNC graduate degree holders and TFA corps members, who comprise 10 percent of the non-UNC undergraduate teachers in the high school mathematics analysis (see Appendix Table A.4).

Elementary Grades: As shown in Table 4, UNC undergraduate prepared teachers were significantly more effective than out-of-state undergraduate prepared teachers in elementary mathematics; out-of-state licensure only teachers in elementary grades reading; and NC private undergraduate and out-of-state undergraduate prepared teachers in fifth grade science. It may be useful to consider these impacts in terms of days of student learning. Here, elementary grades mathematics students taught by a UNC undergraduate prepared teacher gained an average of over five days of learning as compared to similar students taught by an out-of-state undergraduate prepared teacher; elementary grades reading students taught by a UNC undergraduate prepared teacher gained an average of nearly 18 days of learning as compared to similar students taught by an out-of-state licensure only teacher. For information on computing days equivalency, see the Appendix.

UNC undergraduate prepared teachers were significantly less effective than TFA corps members in elementary grades mathematics and fifth grade science. UNC undergraduate prepared teachers also significantly underperformed Visiting International Faculty teachers in elementary grades mathematics and reading. In all other comparisons, UNC undergraduate prepared teachers performed similarly to other teacher portals. For elementary grades effectiveness comparisons that are limited to teachers working in the same schools, see Appendix Table A.5.

Table 4. Elementary Grades: UNC Undergraduate Prepared Teachers vs. All Other Teachers

Portal	Elementary Grades Mathematics		Elementary Grades Reading		5th Grade Science	
	Value	*Standard Error*	*Value*	*Standard Error*	*Value*	*Standard Error*
UNC Graduate Degree Prepared	0.012	0.014	-0.003	0.011	-0.007	0.029
NC Private University Undergraduate Degree	-0.004	0.006	-0.003	0.005	**-0.039***	0.011
NC Private University Graduate Degree	-0.043	0.026	-0.031	0.020	-0.034	0.051
Out-of-State University Undergraduate Degree	**-0.018***	0.005	-0.007	0.004	**-0.039***	0.010
Out-of-State University Graduate Degree	-0.012	0.008	-0.002	0.006	-0.020	0.016
UNC Licensure Only	0.013	0.016	-0.004	0.012	0.032	0.024
Out-of-State Licensure Only	-0.030	0.029	**-0.059***	0.026	—	—
Teach For America	**0.053***	0.018	0.006	0.014	**0.080***	0.034
Visiting International Faculty	**0.042***	0.015	**0.034***	0.012	0.036	0.034
Alternative Entry	-0.015	0.009	0.005	0.007	-0.036	0.019

*Note: Comparisons with fewer than ten teachers are not reported. All results are in reference to UNC undergraduate prepared teachers. *Indicates statistical significance at the .05 level.*

Table 5. Middle Grades: UNC Undergraduate Prepared Teachers vs. All Other Teachers

Portal	Middle Grades Mathematics		Middle Grades Reading		8th Grade Science		Middle Grades Algebra I	
	Value	*Standard Error*	*Value*	*Standard Error*	*Value*	*Standard Error*	*Value*	*Standard Error*
UNC Graduate Degree Prepared	-0.008	0.021	-0.007	0.010	-0.089	0.064	—	—
NC Private University Undergraduate Degree	**-0.031***	0.011	-0.000	0.006	**-0.099***	0.034	-0.068	0.052
NC Private University Graduate Degree	—	—	-0.030	0.021	—	—	—	—
Out-of-State Undergraduate Degree	-0.002	0.007	-0.002	0.004	-0.004	0.017	0.001	0.024
Out-of-State Graduate Degree	-0.004	0.013	-0.003	0.006	-0.019	0.028	-0.072	0.040
UNC Licensure Only	-0.023	0.023	0.000	0.009	—	—	—	—
Out-of-State Licensure Only	—	—	0.033	0.030	—	—	—	—
Teach For America	**0.128***	0.018	**0.022***	0.010	**0.224***	0.032	**0.244***	0.053
Visiting International Faculty	0.009	0.017	0.015	0.020	0.015	0.059	—	—
Alternative Entry	-0.013	0.007	0.003	0.004	**-0.035***	0.016	-0.022	0.031

*Note: Comparisons with fewer than ten teachers are not reported. All results are in reference to UNC undergraduate prepared teachers. *Indicates statistical significance at the .05 level*

Middle Grades: As shown in Table 5, UNC undergraduate prepared teachers were significantly more effective than North Carolina private university undergraduate prepared teachers in middle grades mathematics and 8th grade science. In terms of days of learning, students taught by a UNC undergraduate prepared teacher gained an average of over 19 days of learning more than similar students taught by an NC private undergraduate prepared teacher. UNC undergraduate prepared teachers also significantly outperformed alternative entry teachers in eighth grade science. UNC undergraduate prepared teachers were significantly outperformed by TFA corps members in all four middle grades comparisons. For middle grades effectiveness comparisons that are limited to teachers working in the same schools, see Appendix Table A.6.

High School: As shown in Table 6, UNC undergraduate prepared teachers were significantly more effective than out-of-state undergraduate prepared, VIF, and alternative entry teachers in high school mathematics and out-of-state undergraduate prepared and alternative entry teachers in high school social studies. UNC undergraduate prepared teachers were significantly outperformed by UNC graduate degree and TFA corps members in high school mathematics; out-of-state graduate degree teachers in high school English I; NC private graduate degree, UNC licensure only, and TFA corps members in high school science; and TFA corps members in high school social studies. For high school effectiveness comparisons that are limited to teachers working in the same schools, see Appendix Table A.7.

Evaluation Ratings: As shown in Table 7, UNC undergraduate prepared teachers have significantly greater odds of being rated above proficient on all five North Carolina Professional Teaching Standards (NCPTS) than alternative entry teachers. Further, UNC undergraduate prepared teachers have significantly greater odds of being rated above proficient on Standard 1 (Teachers Demonstrate Leadership) than VIF teachers. UNC undergraduate prepared teachers are as likely to be rated above proficient on all five NCPTS as teachers in the NC private undergraduate, out-of-state undergraduate and graduate, and out-of-state licensure only portals. UNC undergraduate prepared teachers have significantly lower odds of being rated above proficient on all five NCPTS than UNC graduate degree and TFA corps members. Additionally, UNC undergraduate prepared teachers have significantly lower odds of rating above proficient than NC private graduate degree teachers on Standards 1-3 (Teachers Demonstrate Leadership, Teachers Establish a Respectful Environment for a Diverse Population of Students, and Teachers Know the Content They Teach) and UNC licensure only teachers on Standard 3 (Teachers Know the Content They Teach). For evaluation rating comparisons that are limited to teachers working in the same schools and years, see Appendix Table A.8.

Persistence: UNC undergraduate prepared teachers demonstrate high levels of commitment to teaching in North Carolina public schools. Specifically, UNC undergraduate prepared teachers were significantly more likely to return for a fifth year of teaching than teachers from all other portals except North Carolina private undergraduate prepared teachers. More than 86% of UNC undergraduate prepared teachers who begin teaching in North Carolina public schools stay for at least three years and over 76% return for a fifth year of teaching (See Figure 3).

Table 6. High School: UNC Undergraduate Prepared Teachers vs. All Other Teachers

Portal	High School Mathematics		High School English I		High School Science		High School Social Studies	
	Value	*Standard Error*	*Value*	*Standard Error*	*Value*	*Standard Error*	*Value*	*Standard Error*
UNC Graduate Degree Prepared	**0.048***	0.021	0.010	0.010	0.055	0.028	-0.018	0.021
NC Private University Undergraduate Degree	-0.011	0.015	0.008	0.009	-0.009	0.029	-0.027	0.018
NC Private University Graduate Degree	0.020	0.027	0.025	0.017	**0.218***	0.041	-0.004	0.031
Out-of-State Undergraduate Degree	**-0.028***	0.012	-0.002	0.008	-0.029	0.022	**-0.038***	0.017
Out-of-State Graduate Degree	-0.019	0.025	**0.031***	0.012	-0.017	0.024	-0.009	0.023
UNC Licensure Only	-0.040	0.038	-0.002	0.016	**0.084***	0.039	0.016	0.027
Out-of-State Licensure Only	—	—	—	—	—	—	—	—
Teach For America	**0.130***	0.026	0.022	0.016	**0.176***	0.035	**0.090***	0.043
Visiting International Faculty	**-0.077***	0.033	0.031	0.034	0.004	0.053	—	—
Alternative Entry	**-0.036***	0.011	-0.003	0.006	-0.019	0.016	**-0.028***	0.014

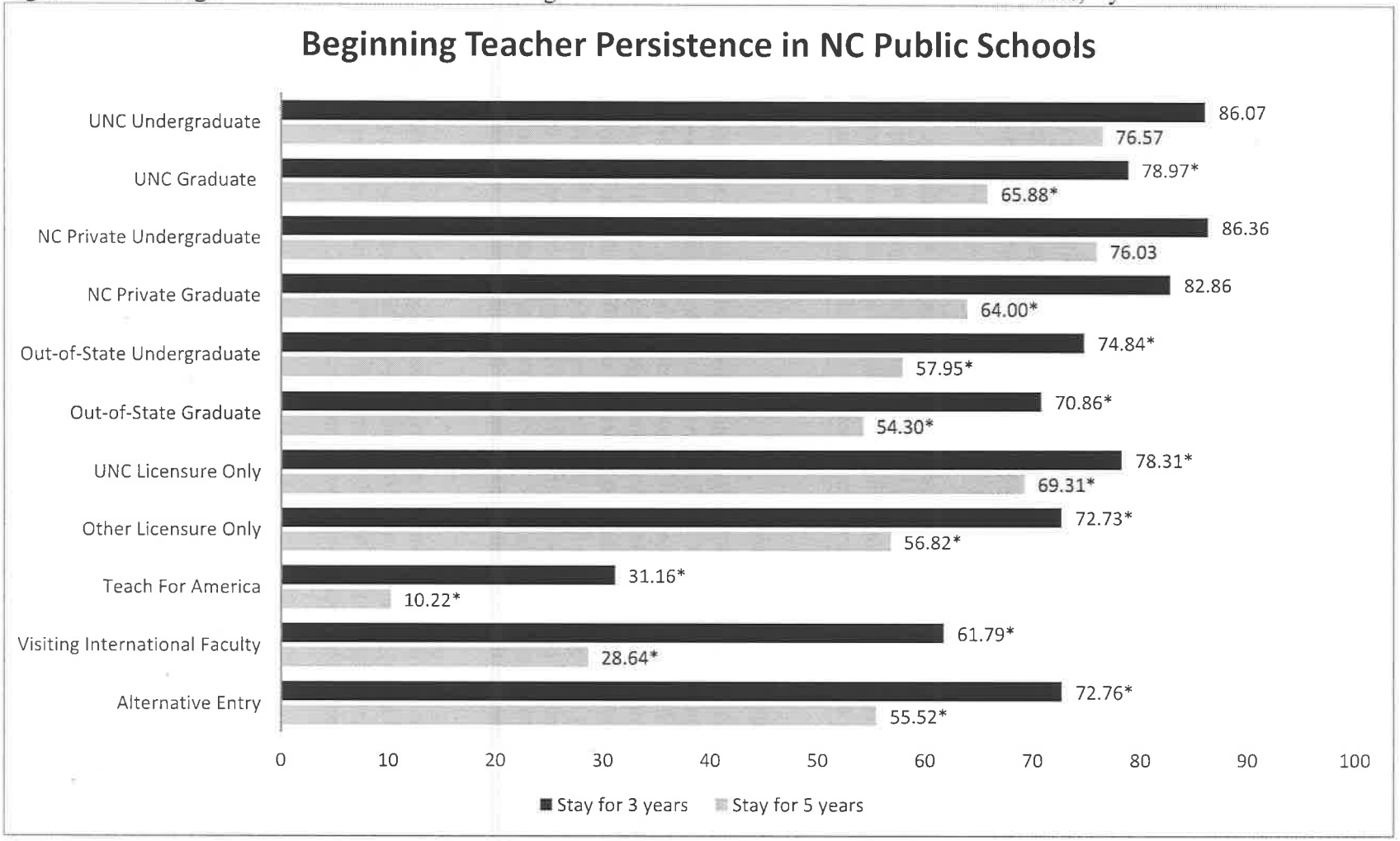
*Note: Comparisons with fewer than ten teachers are not reported. All results are in reference to UNC undergraduate prepared teachers. *Indicates statistical significance at the .05 level.*

Table 7. Evaluation Ratings: UNC Undergraduate Prepared Teachers vs. All Other Teachers

Portal	Standard 1: Leadership	Standard 2: Classroom Environment	Standard 3: Content Knowledge	Standard 4: Facilitating Student Learning	Standard 5: Reflecting on Teaching
UNC Graduate Degree Prepared	**1.265***	**1.317***	**1.463***	**1.219***	**1.319***
NC Private University Undergraduate Degree	1.059	1.049	1.001	1.038	1.043
NC Private University Graduate Degree	**1.334***	**1.373***	**1.361***	1.172	1.253
Out-of-State Undergraduate Degree	0.978	0.964	0.977	0.956	0.976
Out-of-State Graduate Degree	1.038	1.070	1.034	1.023	0.955
UNC Licensure Only	0.926	1.092	**1.249***	0.966	0.937
Out-of-State Licensure Only	0.793	0.718	1.187	0.988	1.164
Teach For America	**1.708***	**1.404***	**1.352***	**1.359***	**1.397***
Visiting International Faculty	**0.816***	1.202	1.207	1.079	0.889
Alternative Entry	**0.795***	**0.867***	**0.884***	**0.828***	**0.818***

*Note: Comparisons with fewer than ten teachers are not reported. All results are in reference to UNC undergraduate prepared teachers. *Indicates statistical significance at the .05 level.*

Figure 3. Percentage of First Year Teachers Persisting in North Carolina Public Schools for 3 and 5 Years, By Portal



*Note: * Indicates rates of persistence that are significantly lower than UNC Undergraduate Prepared teachers.*

UNC Graduate Prepared Teachers

Value-Added: In comparison to UNC undergraduate prepared teachers, teachers who received a graduate degree from a UNC system institution, prior to entering the classroom, were significantly more effective in high school mathematics (See Table 6). UNC graduate degree prepared teachers performed similarly to UNC undergraduate prepared teachers in all other grade levels and subject areas, although there were insufficient UNC graduate prepared middle grades algebra I teachers to report results from these comparisons. For comparisons of UNC graduate prepared teachers that are limited to teachers in the same schools, see Appendix Tables A.5, A.6, and A.7.

Evaluation Ratings: UNC graduate degree prepared teachers had significantly greater odds of being rated above proficient on all five NCPTS than UNC undergraduate prepared teachers (See Table 7). For comparisons of UNC graduate prepared teachers that are limited to teachers in the same schools and years, see Appendix Table A.8.

Persistence: UNC graduate degree prepared teachers demonstrate significantly lower rates of persistence in North Carolina public schools than UNC undergraduate prepared teachers. Nearly 79% of UNC graduate degree prepared teachers who begin teaching in North Carolina public schools stay for at least three years of teaching and nearly 66% return for a fifth year of teaching (See Figure 3).

NC Private Undergraduate Prepared Teachers

Value-Added: In comparison to UNC undergraduate prepared teachers, teachers who received undergraduate degrees from North Carolina private and independent institutions were significantly less effective in 5th grade science, middle grades mathematics, and 8th grade science (See Tables 4 and 5). In middle grades mathematics, on average, a student of a UNC undergraduate prepared teacher could gain over 19 days of learning more per year than a similar student instructed by a teacher prepared as an undergraduate at a NC private college or university. NC private undergraduate prepared teachers performed similarly to UNC undergraduate prepared teachers in all other grade level and subject areas (See Tables 4, 5, and 6). For comparisons of NC private undergraduate prepared teachers that are limited to teachers in the same schools, see Appendix Tables A.5, A.6, and A.7.

Evaluation Ratings: NC private university undergraduate degree prepared teachers have similar odds of being rated above proficient on all five NCPTS as UNC undergraduate prepared teachers (See Table 7). For comparisons of NC private undergraduate prepared teachers that are limited to teachers in the same schools and years, see Appendix Table A.8.

Persistence: NC private university undergraduate prepared teachers demonstrate similar rates of persistence in North Carolina public schools as UNC undergraduate prepared teachers. More than 86% of NC private undergraduate degree prepared teachers who begin teaching in North Carolina public schools, stay for at least three years and over 76% return for a fifth year of teaching (See Figure 3).

NC Private Graduate Prepared Teachers

Value-Added: In comparison to UNC undergraduate prepared teachers, teachers who received graduate degrees from North Carolina private and independent institutions were

significantly more effective at increasing students' End-of-Course scores in high school science (See Table 6). NC private graduate degree prepared teachers performed similarly to UNC undergraduate prepared teachers in elementary grades mathematics and reading, 5th grade science, and middle grades reading (See Tables 4 and 5). There were insufficient NC private graduate degree prepared teachers in middle grades mathematics, middle grades algebra I, and 8th grade science to report results from these comparisons. For comparisons of NC private graduate prepared teachers that are limited to teachers in the same schools, see Appendix Tables A.5, A.6, and A.7.

Evaluation Ratings: NC private university graduate degree prepared teachers have significantly greater odds of being rated above proficient on Standards 1-3 of the NCPTS (Teachers Demonstrate Leadership, Teachers Establish a Respectful Environment for a Diverse Population of Students, and Teachers Know the Content They Teach) than UNC undergraduate prepared teachers (See Table 7). For comparisons of NC private graduate prepared teachers that are limited to teachers in the same schools and years, see Appendix Table A.8.

Persistence: NC private university graduate prepared teachers demonstrate similar rates of persistence for three years in North Carolina public schools; however, they demonstrate significantly lower levels of persistence for five years than UNC undergraduate prepared teachers. Nearly 83% of NC private graduate degree prepared teachers who begin teaching in North Carolina public schools stay for at least three years of teaching and 64% return for a fifth year of teaching (See Figure 3).

Out-of-State Undergraduate Prepared Teachers

Value-Added: In comparison to UNC undergraduate prepared teachers, teachers who received undergraduate degrees from out-of-state institutions are significantly less effective at increasing student test scores in elementary grades mathematics, 5th grade science, high school math, and high school social studies (See Tables 4 and 6). These elementary grades value-added results are particularly noteworthy, since out-of-state undergraduate prepared teachers comprise approximately 30 percent of the early-career elementary tested-grades teacher workforce (See Appendix Table A.4). In terms of days of learning, on average, an elementary grades mathematics student of a teacher with an undergraduate degree from a UNC system institution could expect to gain over 5 days of learning per year more than a similar student with an out-of-state undergraduate prepared teacher. Out-of-state undergraduate degree prepared teachers performed similarly to UNC undergraduate prepared teachers in all other grade level and subject areas (See Table 4, 5, and 6). For comparisons of out-of-state undergraduate degree prepared teachers that are limited to teachers in the same schools, see Appendix Tables A.5, A.6, and A.7.

Evaluation Ratings: Out-of-state undergraduate degree prepared teachers have similar odds of being rated above proficient on all five NCPTS as UNC undergraduate prepared teachers (See Table 7). For comparisons of out-of-state undergraduate prepared teachers that are limited to teachers in the same schools and years, see Appendix Table A.8.

Persistence: Out-of-state undergraduate prepared teachers demonstrate significantly lower rates of persistence in North Carolina public schools than UNC undergraduate prepared teachers. Nearly 75% of out-of-state undergraduate prepared teachers who begin teaching in North Carolina public schools stay for at least three years of teaching and nearly 58% return for a fifth year of teaching (See Figure 3).

Out-of-State Graduate Prepared Teachers

Value-Added: In comparison to UNC undergraduate prepared teachers, teachers who received graduate degrees from out-of-state institutions are significantly more effective at increasing student EOC scores in high school English I (See Table 6). Out-of-state graduate degree prepared teachers performed similarly to UNC undergraduate prepared teachers in all other grade level and subject areas (See Table 4, 5, and 6). For comparisons of out-of-state graduate prepared teachers that are limited to teachers in the same schools, see Appendix Tables A.5, A.6, and A.7.

Evaluation Ratings: Out-of-state graduate degree prepared teachers have similar odds of being rated above proficient on all five NCPTS as UNC undergraduate prepared teachers (See Table 7). For comparisons of out-of-state graduate prepared teachers that are limited to teachers in the same schools and years, see Appendix Table A.8.

Persistence: Out-of-state graduate prepared teachers demonstrate significantly lower rates of persistence in North Carolina public schools than UNC undergraduate prepared teachers. Approximately 71% of out-of-state graduate degree prepared teachers who begin teaching in North Carolina public schools stay for at least three years of teaching and approximately 54% return for a fifth year of teaching (See Figure 3).

UNC Licensure Only Teachers

Value-Added: In comparison to UNC undergraduate prepared teachers, teachers who completed licensure only programs at UNC system institutions are significantly more effective at increasing student EOC scores in high school science (See Table 6). UNC licensure only prepared teachers perform similarly to UNC undergraduate prepared teachers in all elementary grades comparisons, middle grades mathematics and reading, and high school mathematics, English I, and social studies (See Tables 4, 5, and 6). There were insufficient UNC licensure only prepared teachers in 8th grade science and middle grades algebra I to report results of those comparisons. For comparisons of UNC licensure only prepared teachers that are limited to teachers in the same schools, see Appendix Tables A.5, A.6, and A.7.

Evaluation Ratings: UNC licensure only teachers have significantly greater odds of being rated above proficient on Standard 3 of the NCPTS (Teachers Know the Content They Teach) than UNC undergraduate prepared teachers (See Table 7). For comparisons of UNC licensure only teachers that are limited to teachers in the same schools and years, see Appendix Table A.8.

Persistence: UNC licensure only prepared teachers demonstrate significantly lower rates of persistence in North Carolina public schools than UNC undergraduate prepared teachers. Over 78% of UNC licensure only prepared teachers who begin teaching in North Carolina public schools stay for at least three years of teaching and more than 69% return for a fifth year of teaching (See Figure 3).

Out-of-State Licensure Only Teachers

Value-Added: In comparison to UNC undergraduate prepared teachers, teachers who completed licensure only programs at out-of-state universities are significantly less effective in elementary grades reading (See Table 4). In terms of days of learning, students of UNC undergraduate prepared teachers gain an average of nearly 18 days of learning more than similar students taught by out-of-state licensure only teachers. Out-of-state licensure only prepared teachers

perform similarly to UNC undergraduate prepared teachers in elementary grades mathematics and middle grades reading (See Tables 4 and 5). There were insufficient out-of-state licensure only prepared teachers in the remaining subjects and grade levels to report results of those comparisons. For comparisons of out-of-state licensure only prepared teachers that are limited to teachers in the same schools, see Appendix Tables A.5 and A.6.

Evaluation Ratings: Out-of-state licensure only prepared teachers have similar odds of being rated above proficient on all five NCPTS as UNC undergraduate prepared teachers (See Table 7). For comparisons of out-of-state licensure only teachers that are limited to teachers in the same schools and years, see Appendix Table A.8.

Persistence: Out-of-state licensure only prepared teachers demonstrate significantly lower rates of persistence in North Carolina schools than UNC undergraduate prepared teachers. Nearly 73% of out-of-state licensure only prepared teachers who begin teaching in North Carolina public schools stay for at least three years of teaching and almost 57% return for a fifth year of teaching (See Figure 3).

Teach For America

Value-Added: Although a very small source of North Carolina public school teachers, Teach For America corps members are the most effective source of early career teachers in the state. In comparison to UNC undergraduate prepared teachers, Teach For America corps members are significantly more effective in elementary grades mathematics, 5th grade science, middle grades mathematics and reading, 8th grade science, middle grades algebra I, and high school mathematics, science, and social studies (See Tables 4, 5, and 6). In terms of days of learning, middle grades mathematics students of a TFA corps member could gain an average of over 80 days of learning more than a similar student taught by a UNC undergraduate prepared teacher. TFA corps members perform similarly to UNC undergraduate prepared teachers in elementary grades reading and high school English I. For comparisons of TFA corps members that are limited to teachers in the same schools, see Appendix Tables A.5, A.6, and A.7.

Evaluation Ratings: Teach For America corps members have significantly greater odds of being rated above proficient on all five NCPTS than UNC undergraduate prepared teachers (See Table 7). For comparisons of TFA corps members that are limited to teachers in the same schools and years, see Appendix Table A.8.

Persistence: Teach For America corps members demonstrate the lowest rates of persistence in teaching in North Carolina public schools of any of the teacher preparation portals. The TFA program involves a two year commitment, and thus, unsurprisingly, fewer than one third (31%) of corps members return for a third year of teaching, and just over 10% return for a fifth year (See Figure 3).

Visiting International Faculty

Value-Added: In comparison to UNC undergraduate prepared teachers, Visiting International Faculty (VIF) teachers are significantly more effective in elementary grades mathematics and reading (See Table 4). VIF teachers perform similarly to UNC undergraduate degree prepared teachers in 5th grade science, middle grades mathematics and reading, 8th grade science, high school English I and science (See Tables 4, 5, and 6). VIF teachers significantly underperformed UNC undergraduate prepared teachers in high school mathematics comparisons.

There were insufficient VIF teachers in middle grades algebra I and high school social studies to report results of those comparisons. For comparisons of VIF teachers that are limited to teachers in the same schools, see Appendix Tables A.5, A.6, and A.7.

Evaluation Ratings: Visiting International Faculty teachers have significantly lower odds of rating above proficient on Standard 1 of the NCPTS (Teachers Demonstrate Leadership) than UNC undergraduate prepared teachers (See Table 7). For comparisons of VIF teachers that are limited to teachers in the same schools and years, see Appendix Table A.8.

Persistence: Visiting International Faculty teachers demonstrate significantly lower rates of persistence in North Carolina public schools than UNC undergraduate prepared teachers. Fewer than 62% of VIF teachers return for a third year of teaching, and fewer than 29% return for a fifth year (See Figure 3).

Alternative Entry

Value-Added: In comparison to UNC undergraduate prepared teachers, alternative entry teachers are significantly less effective in 8th grade science and high school mathematics and social studies. These value-added results are particularly noteworthy, since alternative entry teachers comprise 38, 30, and 23 percent, respectively, of the early-career teachers in these tested subject-areas. Alternative entry teachers perform similarly to UNC undergraduate prepared teachers in all elementary grades comparisons, middle grades mathematics, reading, and algebra I, and high school English I and science (See Tables 4, 5, and 6). For comparisons of alternative entry teachers that are limited to teachers in the same schools, see Appendix Tables A.5, A.6 and A.7.

Evaluation Ratings: Alternative entry teachers have significantly lower odds of being rated above proficient on all five NCPTS as UNC undergraduate prepared teachers (See Table 7). For comparisons of alternative entry teachers that are limited to teachers in the same schools and years, see Appendix Table A.8.

Persistence: Alternative entry teachers demonstrate significantly lower levels of persistence in North Carolina schools than UNC undergraduate prepared teachers. Nearly 73% of alternative entry teachers who begin teaching in North Carolina public schools stay for at least three years of teaching and more than 55% return for a fifth year of teaching (See Figure 3).

Conclusion

Through our study of the distribution, quality, and persistence of teachers in North Carolina public schools, we found that teachers' preparation prior to entering the profession has significant effects on student achievement, evaluation ratings, and persistence in teaching. Notably, the traditional undergraduate teacher preparation programs at UNC system institutions are a valuable source of teachers to North Carolina public schools. UNC undergraduate prepared teachers are outperforming some of the largest sources of teachers in North Carolina, while underperforming smaller, more specialized sources. The UNC system should continue their use of evidence based policies to (1) increase productivity where they perform particularly well (and where other large portals perform poorly); (2) improve programs where they perform less well; and (3) develop, pilot and evaluate innovations in their programs, modelled on particularly successful portals such as TFA.

The negative performance of out-of-state undergraduate prepared teachers and alternative entry teachers is cause for concern. Out-of-state undergraduate prepared teachers are less effective in elementary grades mathematics and 5th grade science, where they constitute nearly 30% of the work force. Alternative entry teachers are less effective in 8th grade science, where they make up over 38% of the work force, and in high school mathematics, where they constitute nearly 30% of the work force. Alternative entry teachers also have significantly lower odds of being rated above proficient on all five NCPTS than UNC undergraduate prepared teachers. These two sources of teachers also demonstrate significantly lower levels of persistence in North Carolina public schools. Research suggests that although the average performance of teachers from these sources is lower, there is a wide range of teacher quality in these groups, meaning there are many highly effective out-of-state prepared and alternative entry teachers (Bastian & Henry, 2014; Boyd, Goldhaber, Lankford, & Wyckoff, 2007). The answer, then, is not to eliminate alternative entry programs or licensure reciprocity agreements, but rather, to adopt policies that improve the quality and persistence of these teachers through more effective hiring procedures and more intensive supports for beginning teachers.

Teach For America corps members are the most effective source of early career teachers in North Carolina public schools. They perform well across grade levels and subject areas and have significantly greater odds of being rated above proficient on all five NCPTS. However, TFA corps members represent a very small percentage of the teaching workforce in North Carolina (0.5%) and demonstrate very low levels of persistence in North Carolina public schools. Therefore, they are not a widespread replacement for traditionally prepared teachers. Instead, the TFA model provides an opportunity to identify highly effective recruitment, selection, and support practices that can be scaled up to a university, district, or statewide level. For example, TFA selects corps members on the basis of both strong academics and soft skills, such as perseverance, leadership, and the ability to engage students.

Finally, we found some evidence that content knowledge may be important for improving student outcomes in high school STEM courses. For example, teachers with graduate degrees from NC private universities, those with licensure only preparation from UNC institutions and those entering teaching as TFA corps members were more effective in high school science; similarly, TFA corps members and those with graduate degrees from UNC institutions were more effective in high school mathematics. Teachers from these portals would likely have more STEM-related coursework than those from a traditional teacher preparation program and thus, unsurprisingly, teachers from these portals also have significantly greater odds of rating above proficient on Standard 3—Teachers Know the Content They Teach. Content based coursework, that would be part of a graduate program or a major in a science or mathematics discipline, then, may be more important in some subjects. Additional research into this relationship may provide evidence to improve traditional teacher preparation programs in STEM-related fields.

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Appendix: Calculating Days Equivalency

Results in elementary and middle grades mathematics and reading models may be interpreted in terms of the equivalent days of instruction gained (or lost) by comparable students whose teacher is from a particular portal compared to the reference group. Table A.1 contains values for interpretation of effectiveness estimates (coefficients) depending on the model under consideration. For example, comparable students in similar classrooms and schools are expected to score as if they had attended 14 and one-third extra days of school when they are taught by a teacher whose effectiveness estimate (coefficient) is five percent of a standard deviation higher than the reference group in elementary grades mathematics. These estimates vary based on the subject and grade level and the exact formulas for calculating values based on different results is found below.

Table A.1. Key for the Interpretation of Coefficients (Days Equivalency)

Result Values	ES Math	ES Reading	MS Math	MS Reading
0.15	42.73 days	45.26 days	94.08 days	78.06 days
0.10	28.48 days	30.17 days	62.72 days	52.04 days
0.05	14.24 days	15.09 days	31.36 days	26.02 days
0.02	5.70 days	6.03 days	12.54 days	10.41 days

Note: These result values show days equivalency in relation to the reference group; negative result values have negative days equivalency results.

Table A.2. Necessary Information for Days Equivalency Calculations

End of Grade Test	Standard Deviation	Average Yearly Gains
Elementary School Mathematics	9.151	5.782
Elementary School Reading	9.319	5.559
Middle School Mathematics	8.924	2.561
Middle School Reading	8.627	2.984

Days Equivalency Equation= ((Result value x Standard Deviation) / (Avg. Yearly Gain)) x 180

Example for Elementary School Mathematics

Step One

- Result value from Table 4= 0.053
- Standard Deviation (9.151) and Average Yearly Gains (5.782) from the table above

Step Two

- Insert the result value into the days equivalency equation
    - ((0.053 x 9.151)/(5.782)) x 180 = 15.10 days of learning

Days Equivalency for High School and Middle Grades Science/Algebra I

For elementary and middle grades mathematics and reading tests, days equivalency values can be calculated because the tests are interval scaled and students have prior test scores for the subject. In high school subjects and middle grades science and algebra, however, prior test scores do not exist. Therefore, days equivalency values were not provided for these tested subjects.

Table A.3. Portal Data Sources and Decision Rules

Portal	Data Source/Variables Used	Decision Rule
UNC Undergraduate Prepared	**UNC General Administration Data** -Undergraduate degree graduation year -University attended -Education major -Education licensure **DPI Certified Salary Data** -Fiscal year minus teacher's years of experience to calculate first year teaching **DPI Licensure Audit Data** -Earliest basis code for licensure **DPI Education Data** (for pre-1980 graduates) -Undergraduate degree graduation year -University attended -Undergraduate degree level	**Individuals were placed into the UNC Undergraduate Prepared portal if:** 1) They graduated with a Bachelor's degree from a UNC system school; 2) Their undergraduate degree is their highest degree prior to teaching; 3) They have an education major or an education licensure from a UNC institution to indicate traditional training; and 4) Their first year teaching comes after their graduation year. Or 5) They graduated from a UNC school with an undergraduate degree prior to 1980 (too early for the UNC GA data), according to DPI education data, and their earliest basis code was a 1 or 2.
UNC Graduate Prepared	**UNC General Administration Data** -Graduate degree graduation year -University attended **DPI Certified Salary Data** - Fiscal year minus teacher's years of experience to calculate first year teaching **DPI Licensure Audit Data** -Earliest basis code for licensure	**Individuals were placed into the UNC Graduate Prepared portal if:** 1) They graduated with a graduate degree from a UNC system school; 2) Their most proximate degree prior to entering the profession is the UNC graduate degree; 3) Their first year teaching comes after their graduate degree graduation year; and 4) Their earliest basis code is not lateral entry (A,B,C,E,L,R,7). Or 5) They graduated from a UNC school with a graduate degree prior to 1980 (too old for the UNC GA data) and their earliest basis code was a 1 or 2.

Table A.3. Portal Data Sources and Decision Rules, Continued

Portal	Data Source/Variables Used	Decision Rule
NC Private Undergraduate Prepared	**DPI Education Data** -Undergraduate degree graduation year -University attended -Undergraduate degree level **DPI Certified Salary Data** - Fiscal year minus teacher's years of experience to calculate first year teaching **DPI Licensure Audit Data** -Earliest basis code for licensure	**Individuals were placed into the NC Private Undergraduate Prepared portal if**: 1) They graduated with a Bachelor's degree from a NC Private university; 2) Their undergraduate degree is their highest degree prior to teaching; 3) Their first year teaching comes after their graduation year; and 4) Their earliest basis code is not lateral entry (A,B,C,E,L,R,7).
NC Private Graduate Prepared	**DPI Education Data** -Graduate degree graduation year -University attended -Graduate degree level **DPI Certified Salary Data** - Fiscal year minus teacher's years of experience to calculate first year teaching **DPI Licensure Audit Data** -Earliest basis code for licensure	**Individuals were placed into the NC Private Graduate Prepared portal if**: 1) They graduated with a graduate degree from a NC private university; 2) Their most proximate degree prior to entering the profession is the NC private graduate degree; 3) Their first year teaching comes after their graduate degree graduation year; and 4) Their original basis code is not lateral entry (A,B,C,E,L,R,7).
Out-of-State Undergraduate Prepared	**DPI Education Data** -Undergraduate degree graduation year -University attended -Undergraduate degree level **DPI Certified Salary Data** - Fiscal year minus teacher's years of experience to calculate first year teaching **DPI Licensure Audit Data** -Earliest basis code for licensure	**Individuals were placed into the Out-of-state Undergraduate portal if**: 1) They graduated with a Bachelor's degree from an out-of-state university; 2) Their undergraduate degree is their highest degree prior to teaching; 3) Their first year teaching comes after their graduation year; and 4) Their original basis code is not lateral entry (A,B,C,E,L,R,7).

Table A.3. Portal Data Sources and Decision Rules, Continued

Portal	Data Source/Variables Used	Decision Rule
Out-of-State Graduate Prepared	**DPI Education Data** -Graduate degree graduation year -University attended -Graduate degree level **DPI Certified Salary Data** - Fiscal year minus teacher's years of experience to calculate first year teaching **DPI Licensure Audit Data** -Earliest basis code for licensure	**Individuals were placed into the Out-of-state Graduate portal if:** 1) They graduated with a Bachelor's degree from an out-of-state university; 2) Their most proximate degree prior to entering the profession is the out-of-state graduate degree; 3) Their first year teaching comes after their graduation year; and 4) Their original basis code is not lateral entry (A,B,C,E,L,R,7).
UNC Licensure Only	**UNC General Administration Data** -UNC licensure only program completion year **DPI Education Data** -Graduation year **DPI Certified Salary Data** - Fiscal year minus teacher's years of experience to calculate first year teaching **DPI Licensure Audit Data** -Earliest basis code for licensure	**Individuals were placed into the UNC Licensure Only portal if:** 1) They graduated with a Bachelor's or graduate degree from any in-state or out-of-state university; 2) They completed licensure only work at a UNC institution after (not concurrent with) earning their undergraduate or graduate degree, and before entering teaching; and 3) Their original basis code is not lateral entry (A,B,C,E,L,R,7).
Out-of-State Licensure Only	**DPI Education Data** - Graduation year - University attended **DPI Certified Salary Data** - Fiscal year minus teacher's years of experience to calculate first year teaching **DPI Licensure Audit Data** -Earliest basis code for licensure	**Individuals were placed into the Out-of-state Licensure Only portal if:** 1) First year of teaching comes after graduation year; 2) They have a degree from a North Carolina University; and 3) Their basis code indicates they received training out-of-state, but not a degree, between the time of their North Carolina degree and their entry into the classroom.

Table A.3. Portal Data Sources and Decision Rules, Continued

Portal	Data Source/Variables Used	Decision Rule
Teach For America	**Teach For America Data** - Files from Teach For America identify North Carolina corps members **UNC General Administration Data** -Education major -Education licensure	**Individuals were placed into the Teach For America portal if:** 1) They were North Carolina Teach For America corps members; and 2) They were not traditionally trained at a UNC institution prior to teaching.
Visiting International Faculty	**DPI Licensure Audit Data** -Earliest basis code for licensure	**Individuals were placed into the Visiting International Faculty portal if:** 1) They were identified as VIF by program administrators; or 2) They have a basis code of F in the licensure audit file.
Alternative Entry	**DPI Certified Salary Data** - Fiscal year minus teacher's years of experience to calculate first year teaching **DPI Licensure Audit Data** -Earliest basis code for licensure	**Individuals were placed into the Lateral Entry portal if:** 1) They were teaching prior to completion of an education degree or licensure program; and 2) Their original basis code corresponds with lateral entry (A,B,C,E,L,R,7).
Unclassifiable	**UNC General Administration Data** -Graduation year -Completion of an education major or licensure program **DPI Education Data** -Graduation year -Degree level **DPI Certified Salary Data** - Fiscal year minus teacher's years of experience to calculate first year teaching **DPI Licensure Audit Data** -Earliest basis code for licensure	**Individuals were placed into the Unclassifiable portal if:** 1) Based on the decision rules for the teaching portal categories above, data limitations prohibited them from being classified into any of the portals. **Examples:** -Their education/degree level was less than a Bachelor's. -They do not have a graduation year in the DPI education data. -They were teaching more than one year prior to their graduation year, and they do not have a lateral entry basis code.

Table A.4. Teacher Counts by Portal, Level, and Subject

Portal	ES Math	ES Read	ES Science	MS Math	MS Read	MS Science	MS Alg. I	HS Math	HS English	HS Science	HS Social Studies
UNC Undergraduate Prepared	3359	3436	1104	996	982	249	173	696	528	254	469
UNC Graduate Prepared	156	163	58	36	87	13	8	65	112	62	105
NC Private Undergraduate Prepared	1344	1374	438	229	237	39	28	174	112	47	126
NC Private Graduate Prepared	50	51	21	9	20	3	4	36	31	17	30
Out-of-State Undergraduate Prepared	2836	2890	880	800	822	262	121	361	286	201	269
Out-of-State Graduate Prepared	686	708	209	167	235	64	32	110	102	106	98
UNC Licensure Only	123	128	42	34	53	8	5	13	27	21	41
Out-of-State Licensure Only	26	26	3	6	12	1	1	4	4	7	2
Teach For America	119	126	45	115	116	55	16	99	67	75	38
Visiting International Faculty	196	206	60	79	48	19	6	38	33	29	0
Alternative Entry	569	597	165	948	1077	455	148	679	553	756	360
Unclassifiable	209	220	61	55	73	22	8	19	31	23	47

**Highlighted cells have fewer than ten teachers and therefore do not have any results reported.*

Table A.5. Elementary Grades: UNC Undergraduate Prepared Teachers vs. All Other Teachers in the Same School

Portal	Elementary Grades Mathematics		Elementary Grades Reading		5th Grade Science	
	Value	*Standard Error*	*Value*	*Standard Error*	*Value*	*Standard Error*
UNC Graduate Degree Prepared	0.009	0.014	0.006	0.010	0.014	0.029
NC Private University Undergraduate Degree	-0.011	0.006	-0.004	0.005	**-0.049***	0.013
NC Private University Graduate Degree	-0.037	0.028	-0.032	0.019	0.017	0.054
Out-of-State University Undergraduate Degree	**-0.019***	0.005	**-0.010***	0.004	**-0.038***	0.011
Out-of-State University Graduate Degree	**-0.015***	0.007	-0.004	0.006	-0.004	0.017
UNC Licensure Only	-0.001	0.015	-0.006	0.012	0.024	0.027
Out-of-State Licensure Only	**-0.065***	0.030	**-0.081***	0.027	—	—
Teach For America	**0.056***	0.020	0.003	0.015	0.051	0.040
Visiting International Faculty	0.031	0.016	**0.034***	0.013	**0.078***	0.035
Alternative Entry	-0.015	0.009	-0.001	0.007	-0.037	0.021

*Note: Comparisons with fewer than ten teachers are not reported. All results are in reference to UNC undergraduate prepared teachers. *Indicates statistical significance at the .05 level*

Table A.6. Middle Grades: UNC Undergraduate Prepared Teachers vs. All Other Teachers in the Same School

Portal	Middle Grades Mathematics		Middle Grades Reading		8th Grade Science		Middle Grades Algebra I	
	Value	*Standard Error*	*Value*	*Standard Error*	*Value*	*Standard Error*	*Value*	*Standard Error*
UNC Graduate Degree Prepared	0.001	0.022	-0.004	0.010	-0.087	0.059	—	—
NC Private University Undergraduate Degree	**-0.042***	0.011	0.000	0.007	**-0.113***	0.033	**-0.148***	0.061
NC Private University Graduate Degree	—	—	-0.030	0.021	—	—	—	—
Out-of-State Undergraduate Degree	-0.006	0.007	-0.000	0.004	-0.014	0.017	-0.027	0.030
Out-of-State Graduate Degree	-0.010	0.014	-0.006	0.007	**-0.063***	0.029	-0.069	0.043
UNC Licensure Only	-0.012	0.022	0.006	0.010	—	—	—	—
Out-of-State Licensure Only	—	—	0.022	0.028	—	—	—	—
Teach For America	**0.124***	0.022	**0.024***	0.011	**0.325***	0.039	0.133	0.101
Visiting International Faculty	0.012	0.018	0.035	0.020	-0.018	0.054	—	—
Alternative Entry	-0.013	0.007	0.006	0.004	-0.032	0.017	-0.079	0.041

Note: Comparisons with fewer than ten teachers are not reported. All results are in reference to UNC undergraduate prepared teachers.
**Indicates statistical significance at the .05 level.*

Table A.7. High School: UNC Undergraduate Prepared Teachers vs. All Other Teachers in the Same School

Portal	High School Mathematics		High School English I		High School Science		High School Social Studies	
	Value	*Standard Error*	*Value*	*Standard Error*	*Value*	*Standard Error*	*Value*	*Standard Error*
UNC Graduate Degree Prepared	**0.062***	0.023	0.013	0.011	**0.058***	0.024	-0.004	0.020
NC Private University Undergraduate Degree	-0.011	0.014	-0.001	0.009	0.002	0.028	-0.014	0.018
NC Private University Graduate Degree	0.021	0.027	0.028	0.019	**0.230***	0.043	0.006	0.033
Out-of-State Undergraduate Degree	**-0.044***	0.012	-0.008	0.008	-0.037	0.021	**-0.043***	0.016
Out-of-State Graduate Degree	**-0.057***	0.027	**0.024***	0.012	**-0.053***	0.023	-0.009	0.024
UNC Licensure Only	-0.022	0.038	0.008	0.018	0.025	0.045	0.000	0.027
Out-of-State Licensure Only	—	—	—	—	—	—	—	—
Teach For America	**0.157***	0.028	**0.045***	0.017	**0.116***	0.034	0.087	0.047
Visiting International Faculty	**-0.127***	0.035	0.047	0.042	-0.047	0.048	—	—
Alternative Entry	**-0.043***	0.011	0.000	0.007	**-0.031***	0.015	**-0.026***	0.013

*Note: Comparisons with fewer than ten teachers are not reported. All results are in reference to UNC undergraduate prepared teachers. *Indicates statistical significance at the .05 level*

Table A.8. Evaluation Ratings: UNC Undergraduate Prepared Teachers vs. All Other Teachers in the Same School in the Same Year

Portal	Standard 1: Leadership	Standard 2: Classroom Environment	Standard 3: Content Knowledge	Standard 4: Facilitating Student Learning	Standard 5: Reflecting on Teaching
UNC Graduate Degree Prepared	**1.216***	**1.273***	**1.370***	1.120	**1.254***
NC Private University Undergraduate Degree	1.011	0.988	0.940	1.010	1.004
NC Private University Graduate Degree	1.310	**1.341***	**1.373***	1.312	1.327
Out-of-State Undergraduate Degree	0.965	0.985	1.018	0.966	0.988
Out-of-State Graduate Degree	1.018	1.111	1.053	1.015	0.932
UNC Licensure Only	**0.674***	0.787	0.852	**0.663***	**0.763***
Out-of-State Licensure Only	0.602	0.813	1.531	0.924	1.057
Teach For America	**2.504***	**2.243***	**2.185***	**2.393***	**2.034***
Visiting International Faculty	1.067	**1.667***	**1.681***	**1.565***	1.148
Alternative Entry	**0.815***	**0.890***	**0.811***	**0.839***	**0.826***

*Note: This table displays results from models estimating the probability that teachers earn an evaluation rating above proficient. All results are in reference to UNC undergraduate prepared teachers. *Indicates statistical significance at the .05 level.*

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Appendix E

Virtual Medicine

Through the innovative use of an everyday technology,
physician Steve North is revolutionizing the way rural residents receive health care.
Now a doctor's visit is just a webcam away

By LEAH FABEL (CHICAGO '01)

Dr. Steve North has raised nearly $1 million to rig rural schools with cyber doctor's offices, saving families hassle and money and keeping students healthy and in school. Here, he test-runs the new equipment with his son Eli, 6, while a school nurse observes remotely.

Twelve-year old Victor Rousseau lives in the tiny town of Bakersville, N.C., where from his front stoop the Blue Ridge Mountains invite countless adventures—and a few misadventures. He came home one day last spring complaining of a wicked itch on his hands and face, with a bright red rash creeping toward his eyes. A visit to the doctor's office was out of the question. Mitchell County has 220 square miles of steep hills, thick forests, and breathtaking views, but only a handful of physicians and barely one bar of cell-phone reception. Last minute doctor appointments are nearly impossible to arrange, and there are no urgent-care clinics. "It would've been an emergency room visit" to the county's one hospital, says Tamara Rousseau, Victor's mother. "Even for something as simple as a common cold or an earache, a lot of people around here wind up at the emergency room because it's the simplest option." Instead, a new technology saved Victor hours of discomfort, and his mom hours of time and a hefty insurance bill from a trip to the ER. He trotted down to his school nurse's office, where she flipped on a TV screen rigged with $25,000 of equipment. Dr. Steve North (E.N.C. '93), a towering man with a gentle Midwestern bearing, appeared on the screen from a school-based clinic at Buladean Elementary School, 13 winding miles away. He asked Victor to hold to his face a small tool shaped like a pen and fitted with a webcam. "Yep, Vic, you've got poison ivy. See?" North said, flipping a switch so that Victor could see the pesky rash magnified on screen. And that was that. A virtual visit, an easy diagnosis, an e-prescription to the nearest pharmacy, and Victor was back in class.

School-based telemedicine is the latest solution to providing rural health care, and North has become the go to guy for making it work. In an effort to provide medical care for all 4,500 students in Mitchell and neighboring Yancey County, North secured more than $800,000 in federal, state, and private funding for the MY Health-e-Schools network, which operates like a regular clinic out of three school nurse offices, but with remote doctors and high-tech equipment. With the help of Bluetooth enabled stethoscopes and otoscopes, and a nurse's steady hand, North can listen to a child's heartbeat or examine her ear canal from his office miles away. He first learned about the technology while earning a master's degree in public health at the University of Rochester. In 2006, the Wisconsin native landed in his wife's native Mitchell County, and by the close of the 2012-13 school year, his telemedicine network will operate in 14 of the county's

16 schools, serving 4,000 students. Its genesis, though, came two decades earlier and about 300 miles across the state in Edgecombe County, where North taught fifth through eighth grade special education. One of his students, Jessie, came to class with a clear case of pink eye. North offered to take him to the doctor. When he stopped by his home—an old sharecropper's shack—his mother asked if North could take Jessie's sisters, too—one older, one younger. "We arrived at the doctor's office in this town with a pretty mean history of segregation, and here I was, this young white guy with an attractive young African American woman and two other kids. We waited, and we waited, and we waited. And when they finally called the kids' names, they made sure to ask very loudly if they had their Medicaid cards," he says, still flinching at the treatment. "I realized it's about access, access, access. And respect for the patients."

Today, calls come in faster than North can respond from doctors across the country hoping to replicate his work. He wears a wrist brace to ease the aggravation brought on by hours of emailing, texting, and grant-writing. But even with the convenience of telemedicine, the root of the problem remains the same: There simply aren't enough health care providers opting to work in rural communities. "The need for access to mental health services is huge," North says. "We have two therapists in Mitchell County, and there are no child and adolescent psychologists or psychiatrists, so I end up doing a lot of mental-health stuff."

The telemedicine set-up allows North to link to a psychiatrist in Asheville, about an hour southwest, but demand far outpaces available appointments. "And dentition—oh yeah, the need for dentists is enormous," North adds, the "oh yeah" a reminder of his Northern upbringing, the son of a small-town doctor. "I see 3-year-olds needing sedated dental care. Kids miss school all the time for need of a simple extraction—that's a huge problem." So in addition to his work with patients, North is also developing a project with Mitchell High School to connect the school-based clinics with brand-new health-science teaching facilities. "We want to work with rural kids and support an interest in health related careers, so that they'll come back and work in a rural community," he says. One of his first protégés might be Victor Rousseau, now itch-free and more keenly aware of forest greenery. "Vic was amazed—it's nice to get diagnosed, but also to see what the technology can do," his mother says. "He hears me talking about the need for doctors, and he sees where the future is going, and that inspires him."

Students make this city special

Nafeesha Irby | Posted: Sunday, December 21, 2014 6:00 am

By Nafeesha Irby

With the holidays upon us, I've found myself thinking a lot about the power of home. Nine years ago, I came to Greensboro as a wide-eyed freshman at N.C. A&T. I would spend the next four years falling in love with this place, thanks largely to the Guilford County Schools students I met as a volunteer in local classrooms and a tutor at the Hayes-Taylor YMCA.

In the years since, I've explored other parts of North Carolina — from Charlotte to rural Granville County — but my thoughts never ventured far from Greensboro. Last summer, my work with Teach For America brought me back, this time in the company of 28 TFA corps members — a few of our school system's newest educators. And whether they grew up here or came here for the first time, I've now had the pleasure of watching them fall in love, too — thanks once again to the students they have the good fortune to work with every day.

As any parent, educator or concerned citizen knows well, our public schools face real, significant, complex challenges. Today, nearly 19 percent of our city lives in poverty — a rate that outpaces both our state and nation. There's no two ways about it — this makes public education more challenging. But it does nothing to diminish the potential of our phenomenal students. In a community steeped in the history of standing up to seemingly insurmountable challenges, we know that change is possible. It begins with our commitment to making it.

I feel fortunate that my work with Teach For America gives me an opportunity to be part of this broad, diverse effort — one rooted in our history and written in our future. For my group, we begin by working to ensure that more and more of our community's most dynamic leaders choose public education as the place they'll make their impact. This includes career changers along with recent college grads — people like Jason Riley, who grew up in Charlotte, excelled as a student at Howard, and has since returned to his home state to serve as a role model for his students at Page High. Working alongside colleagues of all backgrounds, these individuals help to meet our state's critical need for teaching talent — helping to ensure that principals and seasoned teachers have the bench they need.

In all of this work, the importance of diversity cannot be overstated. While great teachers come from all perspectives, circumstances, states and nations, we also know that those who share the backgrounds of their students have the potential to make a profound additional impact — living, breathing examples of what's possible in a society that more often tells them what's not. For me, this was Mrs. Sibley in the fourth grade and later professor Gail Wiggins in college. I think about them

daily.

This holiday season, I feel deeply grateful to call Greensboro home. And as we look toward a brand new year, I hope we'll all come together to think about what it would take to truly make our home the kind of community we want it to be. As we do, we'll need to remember that we do all this in a place where students themselves once led the fight for equity, inspiring adults to take a stand as well. From their rich legacies, we have the opportunity to be part of charting a new path.

There's no place like home.

Nafeesha Irby is the executive director of Teach For America in the North Carolina Piedmont Triad. To apply to teach, visit www.teachforamerica.org/apply.

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December 1, 2013

Elisa Villanueva Beard
Teach For America
315 West 36th Street
7th Floor
New York, NY 10018

Dear Elisa Villanueva Beard:

On behalf of Charity Navigator, I wish to congratulate Teach For America on achieving our coveted 4-star rating for sound fiscal management and commitment to accountability and transparency.

As the nonprofit sector continues to grow at an unprecedented pace, savvy donors are demanding more accountability, transparency and quantifiable results from the charities they choose to support with their hard-earned dollars. In this competitive philanthropic marketplace, Charity Navigator, America's premier charity evaluator, highlights the fine work of efficient, ethical and open charities. Our goal in all of this is to provide donors with essential information needed to give them greater confidence in the charitable choices they make.

Based on the most recent information available, we have issued a new rating for your organization. We are proud to announce Teach For America has earned our twelfth consecutive 4-star rating. Receiving four out of a possible four stars indicates that your organization adheres to good governance and other best practices that minimize the chance of unethical activities and consistently executes its mission in a fiscally responsible way. Less than 1% of the charities we rate have received at least 12 consecutive 4-star evaluations, indicating that Teach For America outperforms most other charities in America. This "exceptional" designation from Charity Navigator differentiates Teach For America from its peers and demonstrates to the public it is worthy of their trust.

Forbes, Business Week, and *Kiplinger's Financial Magazine*, among others, have profiled and celebrated our unique method of applying data-driven analysis to the charitable sector. We evaluate ten times more charities than our nearest competitor and currently attract more visitors to our website than all other charity rating groups combined, thus making us the leading charity evaluator in America. Our data shows that users of our site gave more than they planned to before viewing our findings, and in fact, it is estimated that last year Charity Navigator influenced approximately $10 billion in charitable gifts.

We believe our service will enhance your organization's fundraising and public relations efforts. Our favorable review of Teach For America's fiscal health and commitment to accountability & transparency will be visible on our website as of December 1st.

We wish you continued success in your charitable endeavors.

Sincerely,

Ken Berger
President & Chief Executive Officer