



## University-Based Induction in Low-Performing Schools: Outcomes for North Carolina New Teacher Support Program Participants in 2014-15

In this policy brief we assess levels of program participation and outcomes for North Carolina New Teacher Support Program (NC NTSP) participants in the 2014-15 school year. Descriptively, we find that NC NTSP teachers receive modest amounts of program services yet report feeling satisfied with the quality of their program supports. Regarding policy-relevant teacher outcomes, NC NTSP teachers have significantly higher retention rates than comparison sample teachers and comparable levels of teacher performance. These retention results are particularly important given recent concerns about teacher shortages in North Carolina and the need to keep a more experienced workforce in low-performing schools. Overall, these results suggest:

1. The promise of university-based induction programs operating in low-performing schools.
2. The NC NTSP should increase the intensity of its programmatic supports—particularly instructional coaching—to benefit participating teachers.
3. The NC NTSP should refine their practices to help novice teachers further develop their instructional skills and benefit student learning.

### Introduction

In many states one persistent challenge in K-12 education is the “greening” of the teacher workforce—rising percentages of inexperienced teachers—and concerns about the performance and retention of novice teachers. To address these concerns, many states and school districts require beginning teachers to participate in induction programs—typically comprised of mentoring and professional development—aimed at easing the transition into teaching, improving instructional practice quality, and encouraging teacher retention. In North Carolina, one notable induction model is the North Carolina New Teacher Support Program (NC NTSP). The UNC system and a select number of its member institutions created and initially implemented the NC NTSP with funds from North Carolina’s Race to the Top (RttT) grant. Post-RttT, the UNC system continues the program with funding from school districts and the state’s General Assembly.

Although evidence suggests that induction programs can benefit teachers, states and school districts still need to find and scale approaches to better develop and retain their early-career teacher workforce. In particular, it is important to assess whether certain induction providers are more effective than others and to identify induction programs that are successful in the at-risk schools where beginning teachers are concentrated. The NC NTSP presents an opportunity to address both these points given its origins as a university-based induction program—rather than a school/district provided program—and its focus on low-performing schools. Therefore, in this policy brief, we extend analyses of the NC NTSP into the post-RttT period by assessing levels of program participation and outcomes for NC NTSP participants in the 2014-15 school year. Importantly, these analyses further develop an evidence-base for districts and schools considering approaches to benefit their beginning teachers.

## Background

As part of North Carolina’s \$400 million RttT grant, representatives of the UNC General Administration and faculty from UNC system Colleges of Education planned for and developed the NC NTSP during the 2010-11 and 2011-12 school years. Four UNC system institutions—East Carolina University (ECU), UNC Center for School Leadership Development (UNC-CSLD), UNC Charlotte (UNCC), and UNC Greensboro (UNCG)—fully implemented the NC NTSP in the state’s RttT-eligible schools (lowest-performing schools) in 2012-13 and 2013-14. Specifically, these institutions hired instructional

coaches who provided coaching supports to NC NTSP teachers and collaborated with College of Education faculty to plan and implement NC NTSP professional development sessions and program institutes (multi-day PD sessions offered early in the school year). Overall, findings for the NC NTSP during RttT (2012-13 and 2013-14) indicate that NC NTSP teachers were significantly more likely to return to the same (lowest-performing) school than comparison sample peers; program outcomes varied, with NC NTSP teachers in the region and cohort with the most intensive program participation having positive value-added, evaluation rating, and retention results.

Table 1: NC NTSP and Comparison Sample Characteristics (2014-15)

Characteristics	NC NTSP Sample	Full Comparison Sample	Matched Comparison Sample
<b>Unique Teacher Count</b>	717	15396	589
<b>Teaching Experience</b>			
<i>First-Year Teachers</i>	45.19%	35.94%	46.01%
<i>Second-Year Teachers</i>	30.96%	32.55%	29.20%
<i>Third-Year Teachers</i>	23.85%	31.51%	24.79%
<b>Alternative Entry License</b>	29.70%	14.15%	23.77%
<b>Number of Schools</b>	93	2226	76
<b>Number of School Districts</b>	27	110	40
<b>Urbanicity</b>			
<i>City</i>	20.43%	33.35%	29.34%
<i>Suburb</i>	2.15%	7.76%	4.00%
<i>Town</i>	11.83%	7.53%	10.67%
<i>Rural</i>	65.59%	51.36%	56.01%
<b>Percent Economically-Disadvantaged</b>	78.52%	58.56%	74.02%
<b>Percent Minority</b>	81.56%	49.25%	74.93%
<b>Short-Term Suspension Rate</b>	39.94	22.53	34.94
<b>Performance Composite</b>	36.09	55.33	36.51
<b>School Growth Status</b>			
<i>Does Not Meet Expectations</i>	34.78%	26.58%	33.78%
<i>Meets Expectations</i>	36.96%	44.90%	44.59%
<i>Exceeds Expectations</i>	28.26%	28.52%	21.62%
<b>Total Per-Pupil Expenditures</b>	\$10,627.39	\$9,546.13	\$10,164.96
<b>Percent Novice Teachers</b>	32.35%	23.03%	28.97%

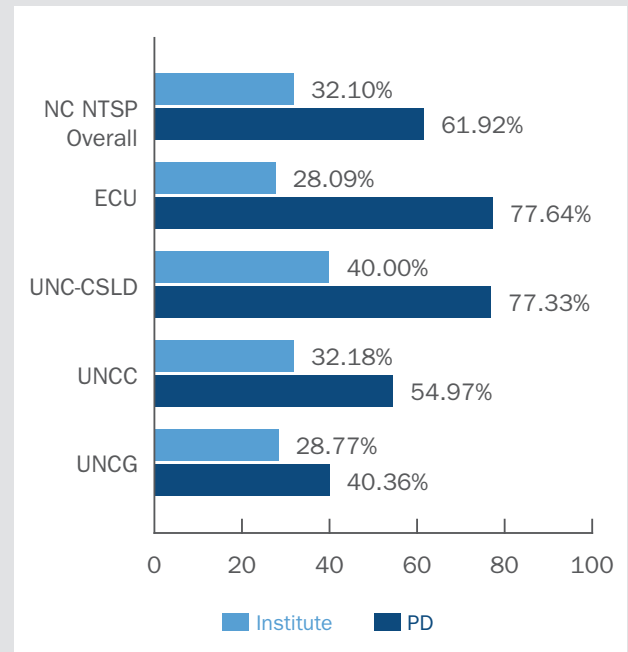
Note: This table displays teacher and school characteristics for the NC NTSP evaluation sample, the *Full* comparison sample, and the *Matched* comparison sample. Teacher characteristics identify unique teachers; school characteristics identify unique schools.

In this policy brief we assess outcomes for NC NTSP and comparison sample teachers on three policy relevant measures—teacher value-added (EVAAS), teacher evaluation ratings (NCEES), and teacher retention. For the 2014–15 school year, our NC NTSP evaluation sample includes 717 novice teachers (first, second, or third year teachers) working in 93 schools and 27 school districts. This sample excludes teachers who began receiving NC NTSP supports in the second-half of the school year (after December) and Teach For America (TFA) corps members. We compare outcomes for NC NTSP teachers to those of teachers in two different comparison groups. Our first comparison group includes all of the first, second, and third-year teachers working in schools that were not part of the NC NTSP in 2014–15. This *Full* comparison sample excludes teachers served by the NC NTSP in previous (RttT) years, those who began working in the second-half of the school year (after December), and TFA corps members. In total, this *Full* comparison sample includes 15,396 novice teachers working in 2,226 schools and 110 school districts. Given that the NC NTSP predominantly served at-risk schools in 2014–15,<sup>1</sup> our second comparison group includes all of the first, second, and third year teachers working in schools that were matched to NC NTSP schools.<sup>2</sup> This *Matched* comparison sample uses the same exclusion criteria as the *Full* comparison sample and consists of 589 teachers working in 76 matched schools and 40 school districts. Table 1 presents individual teacher and school characteristics for our NC NTSP sample, *Full* comparison sample, and *Matched* comparison sample. Together, these comparison groups allow us to assess how NC NTSP teachers compare versus all other novice peers and versus novice peers in schools similar to those served by the NC NTSP in 2014–15.

## Intensity of NC NTSP Support

Consistent with previous years of NC NTSP implementation, Figures 1a and 1b show variation across NC NTSP regions—ECU, UNC-CSLD, UNCC, UNCG—in program participation/intensity during the 2014–15 school year. Figure 1a indicates that 32 percent of the first-year (no prior teaching experience) NC NTSP evaluation sample teachers attended a program institute in the 2014–15 school year—a slight drop in institute attendance from the 38 percent of first-year teachers who

Figure 1a: Participation in NC NTSP Institutes and Professional Development (2014–15)



Note: This figure displays (1) the percentage of first-year NC NTSP evaluation sample teachers attending a program institute and (2) the percentage of eligible NC NTSP professional development sessions attended.

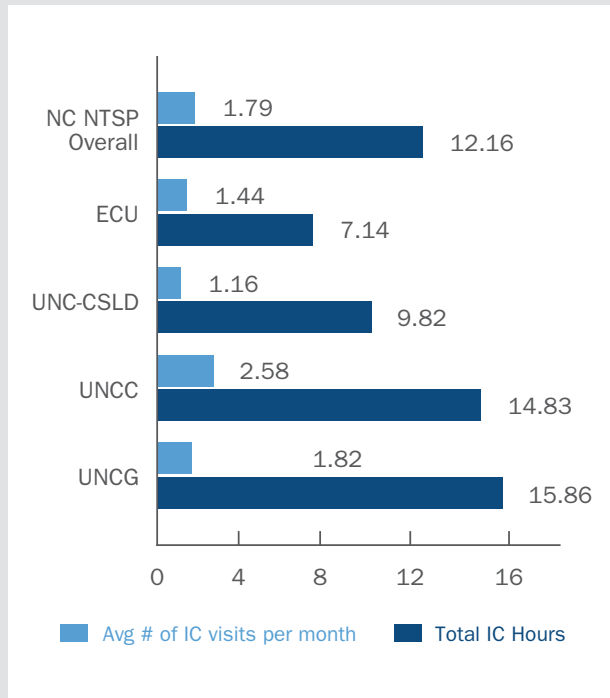
attended in 2013–14—with a range of attendance rates in regions from 40 percent (UNC-CSLD) to 28 percent (ECU). Figure 1a also reports the percentage of NC NTSP professional development sessions attended. Overall, NC NTSP evaluation sample teachers attended 62 percent of the professional development sessions. There was considerable variation between regions, however, with highs of nearly 78 percent in the ECU and UNC-CSLD regions compared with a low of 40 percent in the UNCG region.

Figure 1b displays the average number of in-person instructional coaching visits per month and the average number of total instructional coach contact hours (both in-person and virtual) in 2014–15. Program-wide, NC NTSP teachers averaged 1.79 instructional coaching visits per month—this is down from an average of 2.40 visits in 2013–14. NC NTSP teachers in the UNCC region had the highest number of instructional coach visits per month (2.58); consistent with previous years, NC NTSP teachers

<sup>1</sup> The average performance composite of NC NTSP schools (36.09) was in the second decile statewide; the average percent minority (81.56) and percent economically disadvantaged (78.52) values for NC NTSP schools were in the ninth decile statewide.

<sup>2</sup> To identify this *Matched* comparison sample we used school characteristics from 2013–14 to estimate nearest neighbor propensity score matching models.

Figure 1b: Intensity of NC NTSP Instructional Coaching (2014-15)



Note: For NC NTSP evaluation sample teachers, this table displays the average number of instructional coach visits per month and the average number of total instructional coach contact hours during the 2014-15 school year.

in the UNC-CSLD region averaged the fewest visits per month (1.16). Figure 1b also shows regional variation in the average number of total instructional coach contact hours. NC NTSP teachers averaged slightly more than 12 contact hours, but this ranged from nearly 16 hours in the UNCG region to 7 in the ECU region.

## Do NC NTSP teachers have higher evaluation ratings?

To assess the performance of NC NTSP teachers, we began by analyzing teachers' evaluation ratings on the North Carolina Educator Evaluation System (NCEES). NCEES includes five standards directly assessed by school principals—Demonstrating Leadership, Establishing a Respectful Classroom Environment, Content Knowledge, Facilitating Student Learning, and Reflecting on Practice—and for each standard principals rate teachers at one of five levels—not demonstrated, developing, proficient, accomplished, and distinguished. Our results (odds ratios) are from ordered logit models that control for teacher experience, alternative entry status, and school characteristics.

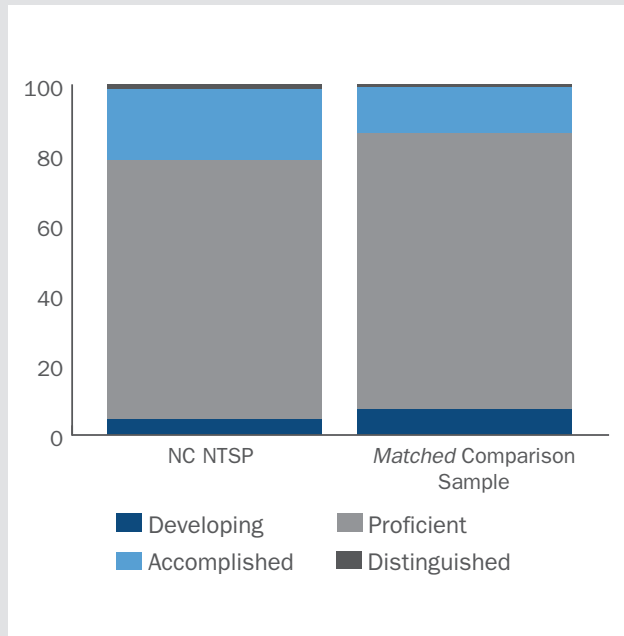
Overall, the top panel of Table 2 shows no significant evaluation rating differences between NC NTSP evaluation sample teachers and their peers in the *Full* comparison sample. However, in comparison to the *Matched* comparison sample, the bottom panel of Table 2 indicates that NC NTSP teachers have significantly higher evaluation ratings on two standards—Classroom Environment and Content Knowledge. To better convey the magnitude of these differences, Figure 2 displays predicted probabilities of rating at developing, proficient, accomplished, or distinguished on the Classroom Environment standard for NC NTSP evaluation sample and *Matched* comparison sample teachers. Approximately 22 percent of NC NTSP evaluation sample teachers were rated in the top two categories; 14 percent of the *Matched* comparison sample teachers earned the same ratings. Other notable results (not displayed) include significantly higher evaluation ratings for (1) NC NTSP teachers in the UNC-

Table 2: NC NTSP Evaluation Ratings Results (2014-15)

	Leadership	Classroom Environment	Content Knowledge	Facilitating Student Learning	Reflecting On Practice
<b>Overall Analyses</b>					
NC NTSP vs. <i>Full</i> Comparison Sample	1.083 (0.650)	1.230 (0.243)	1.109 (0.587)	1.131 (0.529)	1.171 (0.383)
Cases	14,524	14,495	14,495	14,524	14,495
NC NTSP vs. <i>Matched</i> Comparison Sample	1.429 (0.153)	<b>1.703+</b> (0.089)	<b>1.860*</b> (0.019)	1.550 (0.127)	1.176 (0.601)
Cases	1,140	1,139	1,139	1,140	1,139

Note: This table displays evaluation rating results for NC NTSP evaluation sample teachers versus the *Full* comparison sample and the *Matched* comparison sample. Cells report odds ratios with p-values in parentheses. Odds ratios above '1' indicate higher evaluation ratings; odds ratios below '1' indicate lower evaluation ratings. +, \*, and \*\* indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Figure 2: Predicted Teacher Evaluation Ratings—Classroom Environment Standard



Note: This figure displays predicted probabilities for NC NTSP evaluation sample and comparison sample teachers receiving ratings of Developing, Proficient, Accomplished, or Distinguished on the NCEES Classroom Environment standard.

CSLD region (versus the *Full* comparison sample) and in the UNCC region (versus the *Matched* comparison sample); (2) NC NTSP teachers in their second year in the program in 2014–15; and (3) NC NTSP teachers working in middle and high schools.

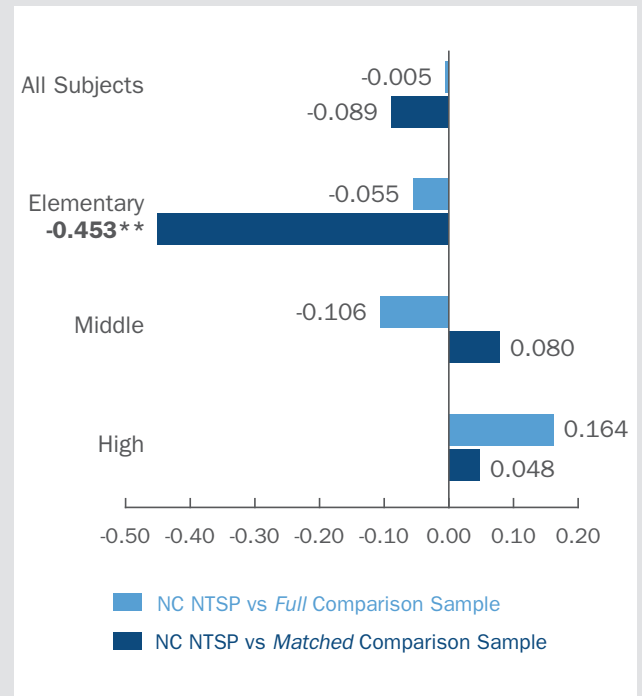
## Do NC NTSP teachers have higher value-added estimates?

To assess the contributions of NC NTSP teachers to student achievement, we standardized teachers' EVAAS estimates, by test (e.g. 4th grade math, biology), across all teachers in North Carolina. This allows us to interpret differences in teacher value-added between NC NTSP and comparison sample teachers as an effect size. For these models, teachers' standardized EVAAS estimates were the outcome variable and we controlled for teacher experience, alternative entry status, and school characteristics. We display results for all subjects, combined, and for elementary, middle, and secondary grades, separately.

Overall, Figure 3 shows that NC NTSP evaluation sample teachers had value-added estimates that were no different from teachers in the *Full* comparison sample. In elementary

grades, NC NTSP teachers were significantly less effective than teachers in the *Matched* comparison sample; given the insignificant results versus the *Full* sample, this negative result is attributable to a set of highly effective teachers in the *Matched* comparison sample. Lastly, dosage models (results not displayed) suggest that NC NTSP teachers who attended more NC NTSP professional development sessions had higher value-added estimates.

Figure 3: NC NTSP EVAAS Results (2014–15)

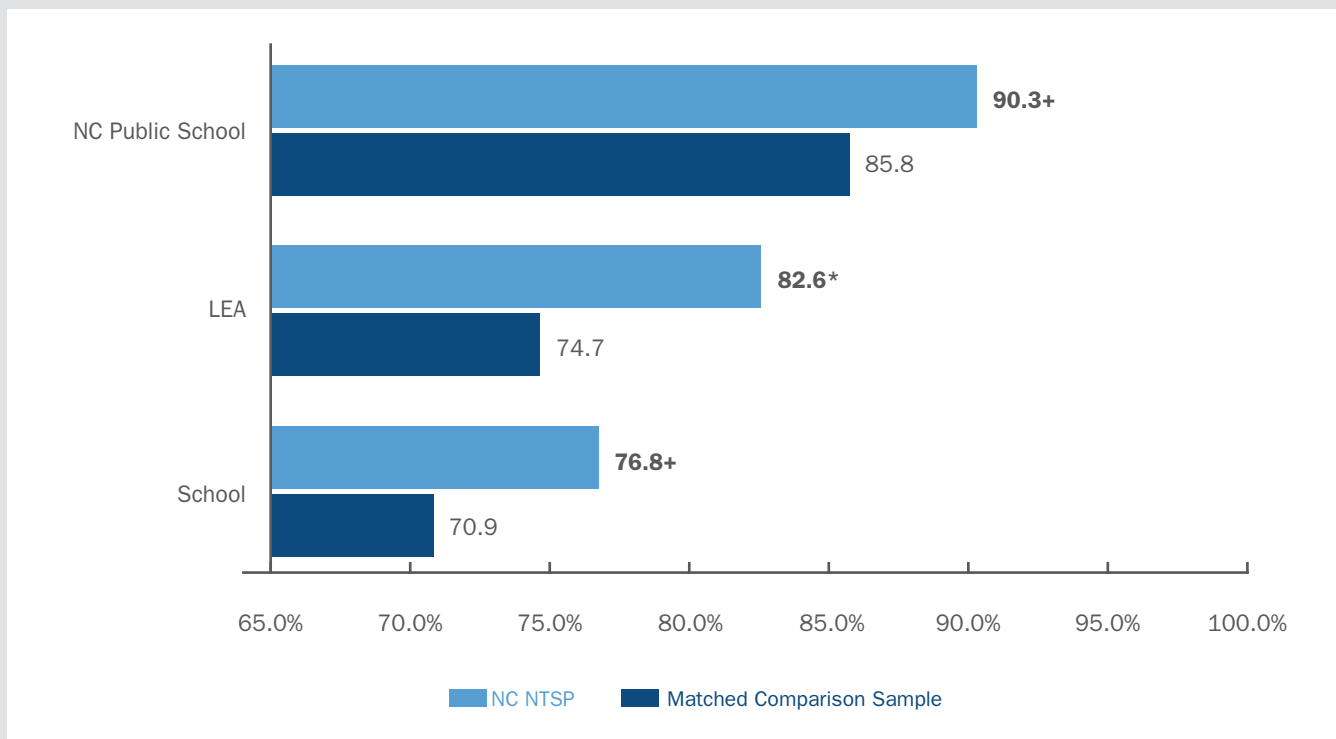


Note: This figure displays teacher EVAAS results for NC NTSP evaluation sample teachers versus the *Full* comparison sample and the *Matched* comparison sample. +, \*, and \*\* indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

## Are NC NTSP teachers more likely to persist in teaching?

To determine whether NC NTSP evaluation sample teachers were more likely than their comparison sample peers to remain in teaching, we estimated models for three types of retention—returning to any North Carolina public school, returning to the same school district, and returning to the same school in the 2015–16 school year. For these analyses the outcome variable was a '1' if the teacher returned in 2015–16 and a '0' if the teacher did not; models controlled for teacher experience, alternative entry status, and school characteristics.

Figure 4: NC NTSP Teacher Retention Results with *Matched* Sample (2014-15)



Note: This figure displays the predicted probabilities (at the mean values for all teacher and school control variables) for returning to a NC Public School, the same LEA, and the same school for NC NTSP participants and the *Matched* comparison sample. +, \*, and \*\* indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Figure 4 presents predicted probabilities of retention for NC NTSP teachers and teachers from the *Matched* comparison sample.<sup>3</sup> Overall, NC NTSP teachers were significantly more likely to return to teaching across all three retention outcomes—predicted probabilities of 90.3, 82.6, and 76.8 percent for state, district, and school retention, respectively—than *Matched* comparison sample teachers. These findings are particularly important given recent concerns about teacher shortages in North Carolina and the need to keep a more experienced workforce in low-performing schools. Additional analyses (not displayed) indicate that (1) retention results were most positive for NC NTSP teachers in their first year in the program; (2) NC NTSP teachers in the UNCG region had significantly higher retention rates than teachers in the *Full* comparison sample; and (3) more NC NTSP instructional coaching visits are associated with higher retention in North Carolina public schools. This dosage finding is consistent with results from the NC NTSP during RttT and suggests that intensive instructional coaching is an effective mechanism to retain teachers.

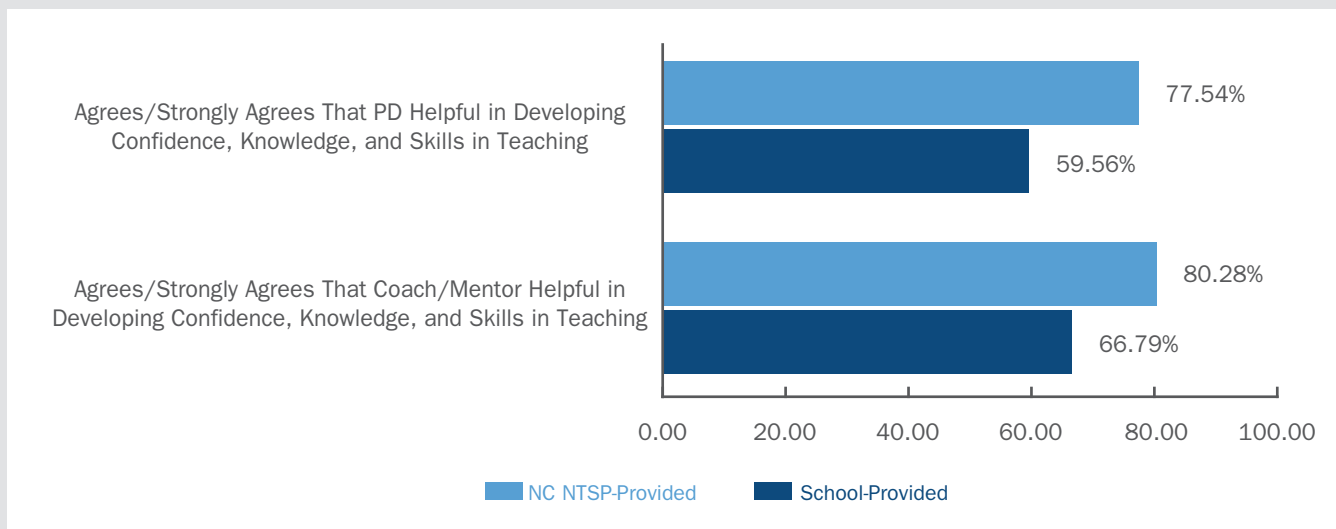
## Teachers’ Perceptions of NC NTSP Quality

To assess NC NTSP teachers’ perceptions of program quality, we administered a survey to NC NTSP evaluation sample teachers asking them to reflect on specific NC NTSP components (e.g. program institute, coaching, and professional development) and to compare them to analogous support services provided by their schools/districts. Specifically, we asked the extent to which each NC NTSP component (or analogous school/district provided support) had been helpful in developing their confidence, knowledge, and skills in teaching. Given a survey response rate of approximately 42 percent, these results should be interpreted cautiously.

Overall, Figure 5 suggests that NC NTSP respondents were satisfied with the program supports they received. Approximately 78 percent of NC NTSP evaluation sample respondents agreed or strongly agreed that program professional development was helpful in developing

<sup>3</sup> Retention results for NC NTSP teachers versus the *Full* comparison sample are similar.

Figure 5: Teacher Perceptions of NC NTSP Quality Relative to District/School-Provided Support



Note: Results for 'NC NTSP-Provided' refer to NC NTSP teachers' perceptions of NC NTSP-provided instructional coaching and professional development. Results for 'School-Provided' refer to NC NTSP teachers' perceptions of district/school-provided mentoring and professional development.

their confidence, knowledge, and skills in teaching; by comparison, approximately 60 percent of NC NTSP respondents answered similarly about their school/district-provided professional development. Regarding instructional coaching/mentoring, over 80 percent of NC NTSP respondents agreed or strongly agreed that their program instructional coach was helpful in developing their confidence, knowledge, and skills in teaching; 67 percent of NC NTSP respondents answered similarly for their school/district-provided mentor. These positive perceptions of NC NTSP provided services are consistent with the positive dosage results—for NC NTSP professional development and EVAAS estimates and NC NTSP instructional coaching and teacher retention—from our teacher outcomes analyses.

## Discussion

Overall, this policy brief shows that with relatively modest program supports, particularly for program institute attendance and the intensity of instructional coaching, NC NTSP teachers had significantly higher retention rates and comparable levels of performance versus comparison sample teachers. These are promising findings given that the NC NTSP primarily served teachers in low-performing and high-poverty/minority schools in 2014-15. Nonetheless,

the NC NTSP has room for improvement. More than a decade of teacher induction research indicates that participation intensity matters for program success yet the frequency of NC NTSP instructional coaching visits and the total number of instructional coach contact hours has fallen in the last two years. The NC NTSP needs to provide more intensive induction support—especially instructional coaching—to participating teachers. This is a straightforward strategy to amplify programmatic outcomes. The NC NTSP should also consider ways to more meaningfully influence instructional practice quality and student achievement. The program has robust teacher retention results, but in the two most recent years of analyses (2013-14 and 2014-15) there were few positive performance (evaluation ratings and value-added) results for NC NTSP teachers. While these insignificant performance results may be a product of modest programmatic intensity, they may also be a product of program activities (e.g. coaching strategies, interactions between instructional coaches and teachers) that need refinement to push towards more rigorous instruction and deeper student learning. Taken together, these results show the promise of university-based induction and its operation in low-performing schools; however, more can be done to help beginning teachers develop their instructional skills to benefit student learning.

## For more research on this topic

Bastian, K.C. & Marks, J.T. (2015). North Carolina New Teacher Support Program: Final Race to the Top Evaluation Report. Available from: <http://cerenc.org/wp-content/uploads/2015/08/0-FINAL-NC-NC-NTSP-Summative-Report-8-6-15.pdf>

Glazerman, S., Isenberg, E., Dolfin, S., Bleeker, M., Johnson, A., Grider, M., & Jacobus, M. (2010). *Impacts of comprehensive teacher induction: Final results from a randomized controlled study*. NCEE-2010-4027. Washington, DC: US Department of Education.

Ingersoll, R.M. & Strong, M. (2011). The impact of induction and mentoring programs for beginning teachers: A critical review of the research. *Review of Educational Research*, 81(2), 201-233.

Smith, T. & Ingersoll, R. (2004). What are the effects of induction and mentoring on beginning teacher turnover? *American Educational Research Journal*, 41(3), 681-714.

---

**Study Authors:** Kevin C. Bastian and Qi W. Xing (September 2016)

*EPIC is an interdisciplinary team that conducts rigorous research and evaluation to inform education policy and practice. We produce evidence to guide data-driven decision-making using qualitative and quantitative methodologies tailored to the target audience. By serving multiple stakeholders, including policy-makers, administrators in districts and institutions of higher education, and program implementers we strengthen the growing body of research on what works and in which context. Our work is ultimately driven by a vision of high quality and equitable education experiences for all students, and particularly students in North Carolina.*

<http://publicpolicy.unc.edu/epic-home/>



THE UNIVERSITY  
of NORTH CAROLINA  
at CHAPEL HILL



UNC  
COLLEGE OF  
ARTS & SCIENCES