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A Comprehensive Model of Teacher Induction: Implementation and Impact on Teachers and Students

Evaluation of the New Teacher Center's i3 Validation Grant, Final Report *Executive Summary*

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Teacher induction strategies aim to provide novice teachers with crucial supports as they first confront the realities of the classroom, shoring up essential management and instructional skills, improving retention in the profession, and ultimately bolstering student learning. The New Teacher Center (NTC) received an Investing in Innovation (i3) Validation grant in 2013 to implement its induction model in three sites: Broward County Public Schools (BCPS) in Florida, Chicago Public Schools (CPS) in Illinois, and the Grant Wood Area Education Agency (GWAEA), a consortium of rural districts in Iowa. Across the three sites, NTC trained full-time released mentors and served two cohorts of beginning teachers for 2 years each. Through the grant, NTC formalized four key components of its comprehensive induction model: (1) build the capacity of districts and school leaders to support the mentoring program, (2) select and assign full-time release mentors to caseloads of no more than 15 teachers each, (3) provide mentors more than 100 hours of intensive training through institutes and in-field support from lead coaches, and (4) provide regular, high-quality mentoring to first- and second-year teachers using a system of NTC-developed online formative assessment tools.

SRI Education conducted the evaluation of NTC's i3 Validation grant, examining the implementation and impact of NTC's induction model. The evaluation used a rigorous mixed-methods design to measure implementation fidelity and impact on teacher and student outcomes across the three participating sites. To account for different local contexts and needs, SRI used two methods to study impact: (1) randomized controlled trials (RCT) in BCPS and CPS with schools randomly assigned to NTC mentoring and control groups and (2) a quasi-experimental design (QED) in GWAEA. In each site, the evaluation team followed two cohorts of new teachers for 2 years each—Cohort 1 began teaching in 2013–14 and Cohort 2 in 2014–15—for a total implementation period of 3 years (2013–14 through 2015–16). The evaluation measured implementation across all 3 years and teacher and student impacts after teachers had participated in 2 years of induction.

Implementation Findings

Using teacher and mentor surveys, interviews, and NTC's online formative assessment system including a coaching log and tool data, the evaluation team annually examined each site's fidelity to the NTC key components. Additionally, SRI measured the extent to which the NTC model as implemented in treatment schools differed from the business-as-usual supports that new teachers received in control schools. The level of implementation fidelity and treatment-control differences helped indicate whether to expect an impact of the NTC induction model on teacher and student outcomes.

Implementation Fidelity

The fidelity of implementation analysis comprised four key program components: (1) NTC supports for the sites, (2) selection and assignment of high-quality mentors, (3) mentor development and accountability, and (4) provision of high-quality mentoring. Each component comprised three to eight indicators, each with defined thresholds for full (i.e., high), medium, and low implementation. Each site received a fidelity score for each indicator, and indicator-level scores were combined to create a site-level score for each key component. Each site's component scores were aggregated across all three sites for a program-level score.

The results across the 3 years showed high implementation fidelity for all sites. The sites improved their implementation of Component 3, mentor development and accountability, and Component 4, provision of high-quality mentoring, which had been scored as "medium" across the three sites in the first year (2013–14). This level of implementation fidelity in the first year was not surprising, representing typical challenges of organizing the new induction strategy for newly selected and trained mentors and establishing relationships with schools and beginning teachers in that first year. In the second and third years (2014–15 and 2015–16), implementation fidelity was

high on all key components, reflecting local focus and growth on the indicators central to NTC induction model.

Treatment–Control Contrast

On the annual surveys of teachers in treatment and control schools, treatment teachers consistently reported more robust induction supports than control teachers. Treatment teachers were more likely to report having a mentor than control teachers. Of those teachers who reported having mentors, treatment teachers met with mentors more frequently and for more time than control teachers and focused more on instruction during their meetings with mentors. Treatment teachers also rated the value of mentoring activities higher than control teachers and were more likely than control teachers to report that the induction supports they received helped them grow as teachers. These multiple measures of beginning teachers' induction experiences indicate that the NTC induction model indeed provided substantially different supports and experiences to treatment teachers from those reported by control teachers.

Teacher Impact Findings

The evaluation examined the extent to which the NTC induction model had an impact on teacher instructional practices and teacher retention in the RCT districts.[1]

Teacher Practice

To determine whether participating in the NTC induction model for 2 years resulted in better teaching practices, the evaluation team measured teacher practice outcomes through structured classroom observations using the Framework for Teaching (Danielson, 2013).[2] Teachers of core subjects (mathematics, reading/English language arts, social studies, science, or self-contained elementary classrooms) in treatment and control schools were randomly selected and observed at two time points (baseline—at the start of their first year of teaching—and at the end of their second year of teaching).

The evaluation found no statistically significant differences between observed treatment and control teachers on the four measures of Domain 2: Classroom Management and the four measures of Domain 3: Instruction. However, because of attrition over time, the number of schools remaining in the analysis sample was relatively low, as was the number of teachers in each school, even when both cohorts and RCT districts were combined. The reduced sample size limited our ability to detect the effects of the NTC model on teacher practice using the Framework for Teaching, particularly if those effects were small or variability in practice among teachers was considerable.

Teacher Retention

Using district administrative data, SRI assessed the impacts of the NTC induction model on teachers' retention into their third year of teaching. Across both cohorts, 79 percent of treatment teachers and 78 percent of control teachers in the RCT district were retained; the difference was not statistically significant. The retention rates across both treatment and control teachers were lower than those found in a national sample of teachers beginning teaching in 2007–08, among whom 85 percent remained in teaching 3 years later (Gray & Taie, 2015).[3] This difference raises the possibility that local factors and/or more recent trends may be influencing retention patterns that induction might not address.

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1 Teacher instructional practice could not be measured at baseline in the QED study because the comparison cohort began teaching before the start of the NTC grant. The teacher retention analysis from the QED site is a purely descriptive off-year comparison; therefore, we conducted only descriptive, not causal, analysis to inform NTC.

2 Danielson, C. (2013). *The framework for teaching evaluation instrument: 2013 edition*. Princeton, NJ: The Danielson Group.

3 Gray, L., & Taie, S. (2015). *Public school teacher attrition and mobility in the first five years: Results from the first through fifth waves of the 2007–08 Beginning Teacher Longitudinal Study* (NCES 2015-337). U.S. Department of Education. Washington, DC: National Center for Education Statistics. http://nces.ed.gov/pubsearch

Student Impact Findings

We examined whether the student achievement of teachers participating in the full NTC induction model for 2 years improved, specifically in English language arts (ELA) and mathematics among students in grades 4 through 8.[4] We used the Florida State Assessment (FSA) for BCPS and the Measures of Academic Progress (MAP) for CPS; CPS administered the MAP to have a consistent assessment that bridged the years during which Illinois switched state tests. For GWAEA, we used the state test, the Iowa Assessment.

RCT Sites [5]

The evaluation team found that NTC's induction program had overall positive effects on student achievement in ELA and mathematics in the two RCT districts (Exhibit ES-1).[6] The students in NTC-supported teachers' classroom for 1 year during the teachers' second year of support demonstrated higher achievement than students of teachers in the control group. In ELA, the average student achievement of teachers in the second year who participated in NTC induction for 2 years was approximately 0.05, compared with -0.04 for students of control teachers. This difference equals an effect size of 0.09 standard deviation ($p < .05$)—equivalent to moving from the 48th to the 52nd percentile—and represents the equivalent of approximately 2 to 3.5 additional months of learning, depending on the student's grade level (Lipsey, Puzio, Yun, Hebert, Steinka-Fry, Cole, et al., 2012).[7]

In mathematics, students in grades 4 through 8 of teachers in the second year who participated in NTC induction for 2 years scored 0.15 standard deviation ($p < .01$) higher on average than students of control teachers. These impacts are equivalent to moving from the 46th to the 52nd percentile and represent the equivalent of approximately 2.4 to 4.5 additional months of learning, depending on the student's grade level.

Exhibit ES-1. Second-Year Impact on Student Achievement, Combined RCT Sites

	Adjusted Mean Test Scores		Difference	Sample Sizes		
Subject	Treatment	Control	(effect size)	Students	Teachers	Schools
ELA	0.05	-0.04	**0.09***	6,147	149	99
Math	0.06	-0.09	**0.15****	4,972	129	86

Note: The effect on student achievement is a 1-year effect as the districts provided current and prior achievement data annually but did not consistently provide identifiers to link students across the data sets given to researchers each year. The 1-year impact after 2 years of mentoring includes achievement in 2014–15 for Cohort 1 teachers and 2015–16 for Cohort 2 teachers.

Adjusted mean test scores are in standard deviation units.

* $p < .05$, ** $p < .01$

4 Students in third grade take state assessments in Florida, Illinois, and Iowa. The third-grade scores serve as the measure of prior achievement for fourth-grade students. As the lowest tested grade, however, third-grade students do not have a measure of prior achievement and could not be included in the analysis. Fourth grade was the lowest grade that we could include in the sample.

5 SRI released a findings brief in June 2017 with the student achievement results from the RCTs. Schmidt, R., Young., Cassidy, L., Wang, H., & Laguarda, K. (2017, June). *Impact of the New Teacher Center's new teacher induction model on teachers and students.* Menlo Park, CA: SRI International. https://www.sri.com/work/publications/impact-new-teacher-centers-new-teacher-induction-model-teachers-and-students

6 District results varied; see Appendix F for methods and district results.

7 Lipsey, M. W., Puzio, K., Yun, C., Hebert, M. A., Steinka-Fry, K., Cole, M. W., Roberts, M., Anthony, K. S., & Busick, M.D. (2012). *Translating the Statistical Representation of the Effects of Education Interventions into More Readily Interpretable Forms*. (NCSER 2013–3000). Washington, DC: National Center for Special Education Research, Institute of Education Sciences (IES), U.S. Department of Education. This report is available on the IES website, http://ies.ed.gov/ncser/

QED Site

In the quasi-experimental study, SRI used a difference-in-differences approach to estimate the impact of participating in the 2-year NTC induction program. The study compared the difference in student achievement between beginning teachers who started teaching in 2013–14 and received NTC induction support for 2 years and a cohort of comparison beginning teachers who started teaching in 2012–13 and did not receive NTC induction support with the difference in the student achievement of veteran teachers in the same years.[8]

The impact estimate for teachers beginning teaching in 2013–14 and in their second year of induction support was not statistically significant, suggesting no detected NTC impact on this cohort of teachers in the QED site. However, the sample size of beginning teachers teaching ELA or mathematics in grades 4 through 8 that resulted from the participating districts' hiring patterns and testing schedules was very small, with 8 comparison and 19 treatment teachers in the ELA analysis and 7 and 23, respectively, in the mathematics analysis. The QED was extremely constrained in being able to detect any effects. As a result, the QED results are inconclusive—we do not know whether the NTC induction model had an impact in the QED site and these results should be interpreted with caution.

Conclusions and Implications

The high implementation fidelity levels and contrasts in induction experiences between treatment and control teachers indicate that the NTC induction model can be implemented well in a range of district contexts and even during times of budget cutbacks, as was the case in CPS. NTC induction did not yield differences in teacher practice as measured through classroom observations, although the sample sizes were small, and in teacher retention rates between treatment and control groups.

The positive student impacts in the RCT sites suggest that the NTC induction model can improve the ELA and mathematics achievement of students in beginning teachers' classrooms. The QED using a differences-in-differences approach did not bear out positive impacts on student outcomes, but it was limited by the small sample size and we do not know statistically whether the NTC induction model had an impact in the QED site.

The mixed results of positive impact on student outcomes but not on teacher practices warrants further investigation. The lack of impact on teacher practices was most likely due to attrition and small sample size. In addition, it is possible that the measures of teacher practice were not fine-grained enough to capture the nature of NTC effects on instruction.

Building on these results under an i3 Scale Up grant, NTC is currently implementing its model in five urban districts across the country and SRI is conducting RCTs in each district. Although NTC successfully achieved high implementation fidelity under the i3 Validation grant, scaling up to more districts and more diverse contexts necessitated adaptations to enhance sustainability and applicability. The evaluation of the i3 Scale Up grant will examine further whether and to what extent the NTC induction model incorporating certain adaptations, such as school-based and part-time mentors and classroom video tools, can achieve high implementation fidelity in larger and more diverse district settings. It will also explore whether, across these varying contexts, the NTC induction model has positive effects on teacher practice, teacher retention, and student achievement.

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[8] When comparing different cohorts of new teachers/their students across years, the intervention and comparison conditions are completely aligned with different time periods, and the estimated impact is confounded with policy or environmental changes from one year to the next that might have affected achievement. By including the veteran teachers from each time period as extra comparison groups for the intervention and comparison new teachers, respectively, this difference-in-differences design attempts to address this issue by controlling for changes that may have occurred between time periods, therefore eliminating the confounding with time.

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