



WWC Intervention Report

A summary of findings from a systematic review of the evidence



Teacher Training, Evaluation, and Compensation

July 2015 Revised*

New Teacher Center Induction Model

Program Description¹

Developed and managed by the New Teacher Center (NTC), the *NTC Induction Model* is a comprehensive and systemic approach to support beginning teachers (i.e., teachers new to the profession). The induction model aims to accelerate the effectiveness of beginning teachers at increasing student learning by providing one-on-one mentoring and professional development in a supportive school environment. The NTC works with school districts and state departments of education to design, develop, and implement induction programs that are aligned with both district priorities and NTC standards.

Research²

The What Works Clearinghouse (WWC) identified one study of the *NTC Induction Model* that falls within the scope of the Teacher Training, Evaluation, and Compensation topic area and meets WWC group design standards.³ This one study meets WWC group design standards without reservations. The study included 413 beginning teachers (defined as teachers who are considered by their district as eligible for beginning teacher induction services) in 199 elementary schools in eight urban school districts.

The WWC considers the extent of evidence for the *NTC Induction Model* on retention outcomes for beginning elementary school teachers to be small for three teacher outcome domains—teacher retention in the school district, teacher retention in the profession, and teacher retention at the school. There were no studies that meet WWC group design standards in the three other teacher outcome domains or the six student outcome domains, so this intervention report does not report on the effectiveness of the *NTC Induction Model* for those domains. (See the Effectiveness Summary on p. 6 for more details on the effectiveness by domain.)

Effectiveness

The *NTC Induction Model* was found to have no discernible effects on teacher retention in the school district, teacher retention in the profession, or teacher retention at the school for beginning elementary school teachers.

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This intervention report presents findings from a systematic review of the *NTC Induction Model* conducted using the WWC Procedures and Standards Handbook, version 3.0, and the Teacher Training, Evaluation, and Compensation review protocol, version 3.1.

Table 1. Summary of findings^{4,5}

| Outcome domain | Rating of effectiveness | Improvement index (percentile points) | | Number of studies | Number of teachers | Extent of evidence |
|---|-------------------------|---------------------------------------|-------|-------------------|--------------------|--------------------|
| | | Average | Range | | | |
| Teacher retention in the school district | No discernible effects | +7 | na | 1 | 413 | Small |
| Teacher retention in the profession | No discernible effects | +2 | na | 1 | 413 | Small |
| Teacher retention at the school | No discernible effects | -2 | na | 1 | 413 | Small |

na = not applicable

Program Information

Background

Ellen Moir founded the NTC in 1998 while serving as the director of teacher education at the University of California, Santa Cruz. The NTC's purpose is to provide teachers with additional support during their first few years of teaching. Originally part of the University of California, Santa Cruz, the NTC is now an independent non-profit organization. Address: 725 Front Street, Suite 400, Santa Cruz, CA 95060. Web: www.newteachercenter.org. Telephone: (831) 600-2200.

Program details

The *NTC Induction Model* includes the following four components:

- **Mentor Development, Ongoing Assessment, and Communities of Practice.** The NTC provides a research-based, sequenced curriculum of mentor professional development. Full-release mentors (veteran teachers who are released from all their classroom duties to serve as full-time mentors) participate in the 2- or 3-year Mentor Academy Series: four 3-day sessions in Year 1 cover Inquiry into Practice; four 3-day sessions in Year 2 cover Equity in Education; and three 2-day sessions in the optional third year cover Inquiry into Mentor Practice. Partial-release mentors (veteran teachers who continue with their classroom duties while serving as mentors) participate in a 2-year Professional Learning Series: four 2-day sessions in Year 1 cover Mentoring for Effective Instruction; and four 2-day sessions in Year 2 cover Reaching All Learners. Both series teach mentors to use the NTC's Formative Assessment and Support (FAS) system, which is a set of tools and protocols aimed at structuring mentor/mentee interactions and advancing teacher practice and student learning (see below). The professional development series is also designed to build a community in which mentors support one another in their professional growth.
- **Principal and Site Leader Capacity Building.** The NTC provides principals and other school leaders with professional development workshops. Offerings include a 1-day workshop on the Role of the Principal in supporting the development of new teachers, a 3-day workshop on Improving Student Achievement, a 1-day workshop on Professional Learning Communities, a 2-day workshop on Supervising and Supporting Principals as Instructional Leaders, and a year-long series of 10 half-day Leadership Institutes focused on developing instructional leadership skills.
- **Program Leadership and Induction Systems Development.** The NTC's Induction Program Standards provide a framework for district and state induction program leaders to follow as they work with the NTC to design, implement, and evaluate their induction programs. The NTC also supports program leaders through ongoing consultation and professional development, including an NTC Induction Institute that presents the components of the *NTC Induction Model*.
- **New Teacher Development, Ongoing Assessment, and Communities of Practice.** The FAS system that guides teacher induction is designed to collect and analyze data on teacher practices and student learning. The tools and protocols are organized around four collaborative processes between mentors and beginning teachers: (a) Understanding Context includes knowing students, exploring school, family, and community resources, and knowing teachers; (b) Setting and Reflecting on Professional Goals includes using collaborative assessment logs and co-assessing teaching practice; (c) Advancing Teaching and Learning Through Inquiry includes analyzing student work, designing effective instruction, conducting classroom observations, and engaging in an inquiry cycle; and (d) Communicating, Collaborating, and Coordinating includes communicating with families, supporting student learning, and communicating with administrators.

Cost

The *NTC Induction Model* costs approximately \$6,000 to \$7,000 per beginning teacher annually. The primary costs are salaries for mentors and beginning teachers, directors, administrative support, and professional development coordinators; facilities; materials; and equipment.

Research Summary

The WWC identified two eligible studies that investigated the effects of the *NTC Induction Model* on student achievement and teacher outcomes for beginning teachers. An additional 12 studies were identified but do not meet WWC eligibility criteria for review in this topic area. Citations for all 14 studies are in the References section, which begins on p. 8.

The WWC reviewed two eligible studies against group design standards. One study (Glazerman et al., 2008) is a cluster randomized controlled trial that meets WWC group design standards without reservations. The study is summarized in this report. One study does not meet WWC group design standards.

Table 2. Scope of reviewed research

| | |
|------------------------|---------------|
| Grades | K–6 |
| Delivery method | Whole school |
| Program type | Teacher level |

Summary of study meeting WWC group design standards without reservations

Glazerman et al. (2008) examined the effects of comprehensive teacher induction for beginning teachers on student achievement and teacher outcomes in a sample of 17 school districts across 13 states. The induction program implemented in schools in eight of the school districts was developed by the NTC at the University of California, Santa Cruz. The induction program implemented in schools in the other nine school districts was that of the Educational Testing Service (ETS) of Princeton, New Jersey. Both programs included weekly mentoring, monthly professional development sessions, and opportunities to observe veteran teachers. Participating districts implemented either the *NTC Induction Model* or the ETS model, based mostly on district preferences. From the 17 participating districts, 418 elementary schools with 1,009 beginning teachers participated in the study. However, this intervention report focuses only on the eight districts that worked with the NTC (215 elementary schools). Within each district, schools were randomly assigned to either implement the *NTC Induction Model* or to a comparison group that continued with the school district's standard induction services.⁶ The study authors examined effects after 1 year of implementation, though the full *NTC Induction Model* is designed to occur over 2 or 3 years.

During this multi-year study, the researchers administered teacher surveys to collect data on the background of the study teachers, receipt of induction services and alternative support services, teacher attitudes, teacher retention, and mobility patterns for the full sample of teachers. Classroom observations were conducted to measure the impact on teaching practices in the first year for a subsample of beginning teachers who were teaching literacy skills. Districts provided student test score data so that researchers could measure impacts on student achievement for students whose teachers taught in tested subjects and grades and who had achievement test scores from the previous year.

This study assessed the impacts of programs on both teacher outcomes (classroom practices, satisfaction, feelings of preparedness, and retention) and student achievement outcomes over a period of 3 school years (2005–06 through 2007–08). The primary findings focused on the combined impacts of both the NTC and ETS models. The findings were released in a series of three reports, assessing impacts through the first, second, and third years of the study, respectively. In the first report, Glazerman et al. (2008) also presented separate findings for each intervention; only the *NTC Induction Model* findings were included in this intervention report. The only *NTC Induction Model* analyses that meet WWC group design standards (with or without reservations) were those examining impacts on teacher retention after Year 1 of the intervention.⁷ The analytic sample for the teacher retention outcomes included 413 teachers (224 *NTC Induction Model* and 189 comparison) in 199 schools (105 *NTC Induction Model* and 94 comparison).

Summary of studies meeting WWC group design standards with reservations

No studies of the *NTC Induction Model* met WWC group design standards with reservations.

Effectiveness Summary

The WWC review of the *NTC Induction Model* for the Teacher Training, Evaluation, and Compensation topic area includes both student and teacher outcomes. The review encompasses student outcomes in six domains: English language arts achievement, mathematics achievement, science achievement, social studies achievement, general achievement, and student progression. The review includes teacher outcomes in six domains: teacher instruction, teacher attendance, student growth scores, teacher retention in the school district, teacher retention in the profession, and teacher retention at the school. The one study of the *NTC Induction Model* that meets WWC group design standards reported findings in three of the six teacher-level outcome domains: (a) teacher retention in the school district, (b) teacher retention in the profession, and (c) teacher retention at the school.⁸ The findings below present the authors’ estimates and WWC-calculated estimates of the size and statistical significance of the effects of the *NTC Induction Model* on beginning elementary school teachers. For a more detailed description of the rating of effectiveness and extent of evidence criteria, see the WWC Rating Criteria on p. 18.

Summary of effectiveness for the teacher retention in the school district domain

One study that meets WWC group design standards without reservations reported findings in the teacher retention in the school district domain.

Glazerman et al. (2008) examined the percentage of teachers who remained in the same district after the first year of the intervention. The authors reported, and the WWC confirmed, that the difference between the *NTC Induction Model* group and the comparison group was not statistically significant. According to WWC criteria, the effect size was not large enough to be considered substantively important (i.e., an effect size of at least 0.25). The WWC characterizes these study findings as an indeterminate effect.

Thus, for the teacher retention in the school district domain, one study showed indeterminate effects. This results in a rating of no discernible effects, with a small extent of evidence.

Table 3. Rating of effectiveness and extent of evidence for the teacher retention in the school district domain

| Rating of effectiveness | Criteria met |
|---|---|
| No discernible effects <i>No affirmative evidence of effects.</i> | In the one study that reported findings, the estimated impact of the intervention on outcomes in the <i>teacher retention in the school district</i> domain was neither statistically significant nor large enough to be substantively important. |
| Extent of evidence | Criteria met |
| Small | One study that included 413 teachers in 199 schools reported evidence of effectiveness in the <i>teacher retention in the school district</i> domain |

Summary of effectiveness for the teacher retention in the profession domain

One study that meets WWC group design standards without reservations reported findings in the teacher retention in the profession domain.

Glazerman et al. (2008) examined the percentage of teachers who remained in the teaching profession after the first year of the intervention. The authors reported, and the WWC confirmed, that the difference between the *NTC Induction Model* group and the comparison group was not statistically significant. According to WWC criteria, the effect size was not large enough to be considered substantively important (i.e., an effect size of at least 0.25). The WWC characterizes these study findings as an indeterminate effect.

Thus, for the teacher retention in the profession domain, one study showed indeterminate effects. This results in a rating of no discernible effects, with a small extent of evidence.

Table 4. Rating of effectiveness and extent of evidence for the teacher retention in the profession domain

| Rating of effectiveness | Criteria met |
|---|--|
| No discernible effects <i>No affirmative evidence of effects.</i> | In the one study that reported findings, the estimated impact of the intervention on outcomes in the <i>teacher retention in the profession</i> domain was neither statistically significant nor large enough to be substantively important. |
| Extent of evidence | Criteria met |
| Small | One study that included 413 teachers in 199 schools reported evidence of effectiveness in the <i>teacher retention in the profession</i> domain. |

Summary of effectiveness for the teacher retention at the school domain

One study that meets WWC group design standards without reservations reported findings in the teacher retention at the school domain.

Glazerman et al. (2008) examined the percentage of teachers who remained in the same school after the first year of the intervention. The authors reported, and the WWC confirmed, that the difference between the *NTC Induction Model* group and the comparison group was not statistically significant. According to WWC criteria, the effect size was not large enough to be considered substantively important (i.e., an effect size of at least 0.25). The WWC characterizes these study findings as an indeterminate effect.

Thus, for the teacher retention at the school domain, one study showed indeterminate effects. This results in a rating of no discernible effects, with a small extent of evidence.

Table 5. Rating of effectiveness and extent of evidence for the teacher retention at the school domain

| Rating of effectiveness | Criteria met |
|---|--|
| No discernible effects <i>No affirmative evidence of effects.</i> | In the one study that reported findings, the estimated impact of the intervention on outcomes in the <i>teacher retention at the school</i> domain was neither statistically significant nor large enough to be substantively important. |
| Extent of evidence | Criteria met |
| Small | One study that included 413 teachers in 199 schools reported evidence of effectiveness in the <i>teacher retention at the school</i> domain. |

References

Study that meets WWC group design standards without reservations

Glazerman, S., Dolfen, S., Bleeker, M., Johnson, A., Isenberg, E., Lugo-Gil, J., ... Britton, E. (2008). *Impacts of comprehensive teacher induction: Results from the first year of a randomized controlled study* (NCEE 2009-4034). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. <http://files.eric.ed.gov/fulltext/ED503061.pdf>.

Additional sources:

Glazerman, S., Isenberg, E., Dolfen, 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: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Isenberg, E., Glazerman, S., Bleeker, M., Johnson, A., Lugo-Gil, J., Grider, M., ... Britton, E. (2009). *Impacts of comprehensive teacher induction: Results from the second year of a randomized controlled study* (NCEE 2009-4072). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. <http://files.eric.ed.gov/fulltext/ED511788.pdf>.

Studies that meet WWC group design standards with reservations

None.

Study that does not meet WWC group design standards

Villar, A., & Strong, M. (2007). Is mentoring worth the money? A benefit-cost analysis and five-year rate of return of a comprehensive mentoring program for beginning teachers. *ERS Spectrum*, 25(3), 1–17. The study does not meet WWC group design standards because equivalence of the analytic intervention and comparison groups is necessary and not demonstrated.

Studies that are ineligible for review using the Teacher Training, Evaluation, and Compensation Evidence Review Protocol

Barrett, K., Hovde, K. H., Hahn, Z. L., & Rosqueta, K. (2011). *High impact philanthropy to improve teaching quality: Focus on high-need secondary students*. Philadelphia, PA: The Center for High Impact Philanthropy. Retrieved from <http://www.impact.upenn.edu> The study is ineligible for review because it did not use an eligible design.

Beattie, D. S. (2013). *Evaluation of the impact of a mentor-based program on teacher retention in a large urban school district* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3579822) The study is ineligible for review because it was out of the scope of the protocol.

Fletcher, S., Strong, M., & Villar, A. (2008). An investigation of the effects of variations in mentor-based induction on the performance of students in California. *Teachers College Record*, 110(10), 2271–2289. The study is ineligible for review because it was out of the scope of the protocol.

Hall, W. R., Jr. (2009). *Perceptions of the Virginia elementary principal's role in supporting new teacher induction* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3386634) The study is ineligible for review because it was out of the scope of the protocol.

Hanson, S., & Moir, E. (2008). Beyond mentoring: Influencing the professional practice and careers of experienced teachers. *Phi Delta Kappan*, 89(6), 453–458. The study is ineligible for review because it was out of the scope of the protocol.

Johnson, L. (2009). *Comprehensive induction or add-on induction? Impact on teacher practice and student engagement*. Santa Cruz, CA: The New Teacher Center, University of California, Santa Cruz. Retrieved from <http://www.newteachercenter.org> The study is ineligible for review because it was out of the scope of the protocol.

- Martin, P. (2008). Novice teachers: Meeting the challenge. *Principal*, 88(2), 42–44. The study is ineligible for review because it was out of the scope of the protocol.
- Menegat, G. M. (2010). *Mentor/protege interactions and the role of mentor training within a novice teacher mentoring program* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3403009) The study is ineligible for review because it was out of the scope of the protocol.
- Moir, E. (2009). Accelerating teacher effectiveness: Lessons learned from two decades of new teacher induction. *Phi Delta Kappan*, 91(2), 14–21. The study is ineligible for review because it was out of the scope of the protocol.
- Moir, E., Barlin, D., Gless, J., & Miles, J. (2009). *New teacher mentoring: Hopes and promise for improving teacher effectiveness*. Cambridge, MA: Harvard Education Press. The study is ineligible for review because it did not use an eligible design.
- Strong, M. (2006). *Does new teacher support affect student achievement? Some early research findings*. Santa Cruz, CA: The New Teacher Center, University of California, Santa Cruz. Retrieved from <http://www.newteachercenter.org> The study is ineligible for review because it was out of scope of the protocol.
- Strong, M. (2009). *Effective teacher induction and mentoring: Assessing the evidence*. New York: Teachers College Press. The study is ineligible for review because it did not use an eligible design.

Appendix A: Research details for Glazerman et al. (2008)⁹

Glazerman, S., Dolfen, S., Bleeker, M., Johnson, A., Isenberg, E., Lugo-Gil, J., ... Britton, E. (2008). *Impacts of comprehensive teacher induction: Results from the first year of a randomized controlled study* (NCEE 2009-4034). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. <http://files.eric.ed.gov/fulltext/ED503061.pdf>.

Additional source:

Glazerman, S., Isenberg, E., Dolfen, 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: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Table A. Summary of findings

Meets WWC group design standards without reservations

| Outcome domain | Sample size | Study findings | |
|--|--------------------------|---|---------------------------|
| | | Average improvement index (percentile points) | Statistically significant |
| Teacher retention in the school district | 199 schools/413 teachers | +7 | No |
| Teacher retention in the profession | 199 schools/413 teachers | +2 | No |
| Teacher retention at the school | 199 schools/413 teachers | -2 | No |

Setting The study was conducted in 418 elementary schools in 17 urban school districts. This intervention report focuses only on the 215 schools in eight districts that worked with the NTC.

Study sample The 17 school districts included in the study were selected because they expressed interest in study participation and met the following criteria: (a) the school district had at least 570 teachers in elementary schools; (b) the school district had at least 10 elementary schools in which at least 50% of students were eligible for free or reduced-price meals; (c) and the school district had schools with no comprehensive teacher induction program, no full-time mentors, and an expenditure of \$1,000 or less on teacher induction per new hire. Study authors assigned participating districts to one of two comprehensive teacher induction service providers—the NTC (eight districts) or ETS (nine districts)—based mostly on district preferences. Within each district, study authors selected schools that did not have a comprehensive teacher induction program and had eligible beginning elementary school teachers, defined as teachers who: (a) taught in grades K–6; (b) were deemed by the school district to be new to the profession, from the perspective of being eligible for beginning-teacher induction services; and (c) were not receiving induction services from a teacher preparation or certification program. Study authors randomly assigned 215 elementary schools within the eight NTC districts either to receive the *NTC Induction Model* (110 schools) or to serve as a business-as-usual comparison group (105 schools). The study targeted all eligible beginning teachers in each participating school. The analytic sample for the teacher retention outcomes included 413 teachers (224 *NTC Induction Model* and 189 comparison) who completed both a baseline background survey and a follow-up mobility survey; these teachers came from 199 schools (105 *NTC Induction Model* and 94 comparison).

Intervention group

The NTC adapted its induction model for the study to deliver required induction components in a 1-year curriculum, though the full *NTC Induction Model* is designed to occur over 2 or 3 years.¹⁰ Beginning elementary school teachers in *NTC Induction Model* schools were assigned to full-time mentors, with each mentor assisting 11 beginning teachers, on average. Mentees participated in weekly meetings with mentors, monthly professional development sessions, one or two observations of veteran teachers, and an end-of-year colloquium.

The NTC sought to hire mentors who had at least 5 years of experience teaching in elementary school, had been recognized as an exemplary teacher, and had experience mentoring or providing professional development to other teachers (particularly beginning teachers). Mentors were expected to spend about 2 hours each week with each mentee engaging in conversations about teacher learning activities and implementing strategies such as observing lessons, reviewing lesson plans and materials, providing lesson demonstrations, reviewing students' work, and interacting with students. In spring of the first intervention year, 95% of beginning teachers in the *NTC Induction Model* group reported having a mentor, and 25% reported having multiple mentors. The beginning teachers in the intervention group also reported spending, on average, 104 minutes meeting with their mentors during the most recent full week of teaching.

Comparison group

Teachers in the comparison group received the standard induction services, if any, that were provided to beginning teachers in their district.

In spring of the first intervention year, 85% of beginning teachers in the comparison group reported having a mentor, and 23% reported having multiple mentors. The beginning teachers in the comparison group also reported spending, on average, 86 minutes meeting with their mentors during the most recent full week of teaching.

Outcomes and measurement

Glazerman et al. (2008) used teacher surveys in fall 2006, fall 2007, and fall 2008 to track whether beginning teachers remained in their schools, school districts, and the teaching profession. NTC-specific findings were provided only for the fall 2006 data, describing retention after 1 year of *NTC Induction Model* services. For a more detailed description of these outcome measures, see Appendix B.

Glazerman et al. (2008) also examined outcomes in the following domains: English language arts achievement, mathematics achievement, and teacher instruction. However, these outcomes *do not meet WWC group design standards* because the study authors did not provide the information needed to determine attrition, and the analytic intervention and comparison groups were not shown to be equivalent.

Teachers also responded to survey items about their feelings of preparedness for teaching and their satisfaction with teaching. These outcomes are ineligible for review because they do not fall within a domain specified in the Teacher Training, Evaluation, and Compensation review protocol.

Support for implementation

The NTC at the University of California, Santa Cruz, oversaw implementation of all program activities in the eight school districts using the *NTC Induction Model*. School district coordinators provided local oversight. In addition to helping school districts select mentors, the NTC provided mentors with 12 days of formal training over four sessions during the intervention year. The trainings focused on the professional development content provided to teachers and the process of being a mentor. Mentors also received support throughout the school year through weekly mentor meetings and advice and feedback from school district coordinators and NTC staff. Researchers from WestEd monitored implementation in an attempt to ensure fidelity to the induction model.

Appendix B: Outcome measures for each domain

Teacher retention in the school district

Percentage retained in the same district Measured as a binary outcome at the individual teacher level, this outcome indicates the mean percentage of study teachers who reported remaining in the school district in which they taught at the beginning of the study. This outcome was assessed in fall 2006, 1 year following the initial implementation of the intervention (as cited in Glazerman et al., 2008).

Teacher retention in the profession

Percentage retained in the teaching profession Measured as a binary outcome at the individual teacher level, this outcome indicates the mean percentage of study teachers who reported remaining in the teaching profession. This outcome was assessed in fall 2006, 1 year following the initial implementation of the intervention (as cited in Glazerman et al., 2008).

Teacher retention at the school

Percentage retained at the same school Measured as a binary outcome at the individual teacher level, this outcome indicates the mean percentage of study teachers who reported remaining at the school in which they taught at the beginning of the study. This outcome was assessed in fall 2006, 1 year following the initial implementation of the intervention (as cited in Glazerman et al., 2008).

Appendix C.1: Findings included in the rating for the teacher retention in the school district domain

| Outcome measure | Study sample | Sample size | Mean (standard deviation) | | WWC calculations | | | p-value |
|---|--------------|--------------------------|---------------------------|------------------|------------------|-------------|-------------------|--------------------------------------|
| | | | Intervention group | Comparison group | Mean difference | Effect size | Improvement index | |
| Glazerman et al., 2008^a | | | | | | | | |
| <i>Percentage retained in the same district</i> | All teachers | 199 schools/413 teachers | 90.6 (na) | 87.6 (na) | 3.0 | 0.19 | +7 | .38 |
| Domain average for teacher retention in the school district (Glazerman et al., 2008) | | | | | | 0.19 | +7 | Not statistically significant |
| Domain average for teacher retention in the school district across all studies | | | | | | 0.19 | +7 | na |

Table Notes: For mean difference, effect size, and improvement index values reported in the table, a positive number favors the intervention group and a negative number favors the comparison group. The effect size is a standardized measure of the effect of an intervention on outcomes, representing the average change expected for all individuals who are given the intervention (measured in standard deviations of the outcome measure). The improvement index is an alternate presentation of the effect size, reflecting the change in an average individual's percentile rank that can be expected if the individual is given the intervention. The statistical significance of the domain average was determined by the WWC. Some statistics may not sum as expected due to rounding. na = not applicable.

^aFor Glazerman et al. (2008), no corrections for clustering or multiple comparisons and no difference-in-differences adjustments were needed. The p-value presented here was reported in the original study. This study is characterized as having an indeterminate effect because the estimated effect is neither statistically significant nor substantively important. For more information, please refer to the WWC Procedures and Standards Handbook (version 3.0), p. 26.

Appendix C.2: Findings included in the rating for the teacher retention in the profession domain

| Outcome measure | Study sample | Sample size | Mean (standard deviation) | | WWC calculations | | | p-value |
|--|--------------|--------------------------|---------------------------|------------------|------------------|-------------|-------------------|--------------------------------------|
| | | | Intervention group | Comparison group | Mean difference | Effect size | Improvement index | |
| Glazerman et al., 2008^a | | | | | | | | |
| <i>Percentage retained in the teaching profession</i> | All teachers | 199 schools/413 teachers | 93.2 (na) | 92.7 (na) | 0.5 | 0.05 | +2 | .86 |
| Domain average for teacher retention in the profession (Glazerman et al., 2008) | | | | | | 0.05 | +2 | Not statistically significant |
| Domain average for teacher retention in the school district across all studies | | | | | | 0.05 | +2 | na |

Table Notes: For mean difference, effect size, and improvement index values reported in the table, a positive number favors the intervention group and a negative number favors the comparison group. The effect size is a standardized measure of the effect of an intervention on outcomes, representing the average change expected for all individuals who are given the intervention (measured in standard deviations of the outcome measure). The improvement index is an alternate presentation of the effect size, reflecting the change in an average individual's percentile rank that can be expected if the individual is given the intervention. The statistical significance of the domain average was determined by the WWC. Some statistics may not sum as expected due to rounding. na = not applicable.

^aFor Glazerman et al. (2008), no corrections for clustering or multiple comparisons and no difference-in-differences adjustments were needed. The p-value presented here was reported in the original study. This study is characterized as having an indeterminate effect because the estimated effect is neither statistically significant nor substantively important. For more information, please refer to the WWC Procedures and Standards Handbook (version 3.0), p. 26.

Appendix C.3: Findings included in the rating for the teacher retention at the school domain

| Outcome measure | Study sample | Sample size | Mean (standard deviation) | | WWC calculations | | | p-value |
|---|--------------|------------------------------|---------------------------|------------------|------------------|--------------|-------------------|--------------------------------------|
| | | | Intervention group | Comparison group | Mean difference | Effect size | Improvement index | |
| Glazerman et al., 2008^a | | | | | | | | |
| <i>Percentage retained at the same school</i> | All teachers | 199 schools/ 413 teachers | 77.9 (na) | 79.2 (na) | -1.3 | -0.05 | -2 | .79 |
| Domain average for teacher retention at the school (Glazerman et al., 2008) | | | | | | -0.05 | -2 | Not statistically significant |
| Domain average for teacher retention in the school district across all studies | | | | | | -0.05 | -2 | na |

Table Notes: For mean difference, effect size, and improvement index values reported in the table, a positive number favors the intervention group and a negative number favors the comparison group. The effect size is a standardized measure of the effect of an intervention on outcomes, representing the average change expected for all individuals who are given the intervention (measured in standard deviations of the outcome measure). The improvement index is an alternate presentation of the effect size, reflecting the change in an average individual’s percentile rank that can be expected if the individual is given the intervention. The statistical significance of the domain average was determined by the WWC. Some statistics may not sum as expected due to rounding. na = not applicable.

^aFor Glazerman et al. (2008), no corrections for clustering or multiple comparisons and no difference-in-differences adjustments were needed. The p-value presented here was reported in the original study. This study is characterized as having an indeterminate effect because the estimated effect is neither statistically significant nor substantively important. For more information, please refer to the WWC Procedures and Standards Handbook (version 3.0), p. 26.

Endnotes

* On June 27, 2016, the WWC modified this report in response to an independent review by a quality review team. Based on the review, the WWC modified the descriptions of Glazerman et al.'s (2008) study in the Research Summary and the Intervention Group section in Appendix A. The WWC has not added studies to the evidence base, updated the literature search, changed any study ratings, or changed values presented in tables since the July 2015 report.

¹ The descriptive information for this program was obtained from publicly available sources: the program's website (www.newteachercenter.org, downloaded March 2014) and the research literature (Glazerman et al., 2008; Barrett et al., 2011). The WWC requests developers review the program description sections for accuracy from their perspective. The program description was provided to the developer in April 2014; however, the WWC received no response. Further verification of the accuracy of the descriptive information for this program is beyond the scope of this review.

² The literature search reflects documents publicly available by July 2014. A quick review blast of Glazerman et al. (2008) was released in June 2009, and a single study review of Glazerman et al. (2010) was released in September 2013. These previous reviews of the Glazerman studies considered only the effects of comprehensive teacher induction, which were estimated as the combined impacts of both the *NTC* and Educational Testing Service (ETS) models. The quick review blast and single study review found that the comprehensive teacher induction program had no statistically significant effects. This report includes only the *NTC Induction Model* findings, which were presented separately only in Glazerman et al. (2008). The studies in this report were reviewed using the Standards from the WWC Procedures and Standards Handbook (version 3.0), along with those described in the Teacher Training, Evaluation, and Compensation review protocol (version 3.1). The evidence presented in this report is based on publicly available research. Findings and conclusions may change as new research becomes available.

³ Absence of conflict of interest: This intervention report includes a study conducted by staff from Mathematica Policy Research. Because Mathematica is one of the contractors that administers the WWC, the study was reviewed by staff members from a different organization. This report was reviewed by the lead methodologist, a WWC Quality Assurance reviewer, and an external peer reviewer.

⁴ For criteria used in the determination of the rating of effectiveness and extent of evidence, see the WWC Rating Criteria on p. 18. These improvement index numbers show the average and range of individual-level improvement indices for all findings across the studies.

⁵ The following domains were not examined by studies that meet WWC design standards: science achievement, social studies achievement, general achievement, student progression, teacher attendance, and student growth scores. The one study that met WWC group design standards examined outcomes in the English language arts achievement, mathematics achievement, and teacher instruction domains; however, the outcomes are rated as *do not meet WWC group design standards* because the study authors did not provide the information needed to determine attrition, and the analytic intervention and comparison groups were not shown to be equivalent.

⁶ Glazerman et al. (2008) reported the findings after a single year of implementation. In the second year of the study, the researchers selected a subset of the original districts to receive a second year of the teacher induction program. In these districts, the schools that were originally assigned to receive the intervention continued to offer the intervention services for a second year to beginning teachers. Findings from the second year of the study are presented in Isenberg et al. (2009), but separate impacts for the ETS and NTC models are not provided. The researchers also did not provide separate impact estimates for the two programs after the third study year (Glazerman et al., 2010). As such, this intervention report focuses on the impacts of the *NTC Induction Model* after a single year of teacher induction.

⁷ In addition to the analysis of the teacher retention outcomes, the study examined impacts on (a) student reading achievement, (b) student math achievement, (c) teacher implementation of literacy lessons, (d) content of literacy lessons, (e) classroom culture, (f) teacher feelings of preparedness to instruct, (g) teacher feelings of preparedness to work with students, (h) teacher feelings of preparedness to work with other school staff, (i) teacher satisfaction with school, (j) teacher satisfaction with class, and (k) teacher satisfaction with teaching career. The student achievement outcomes (outcomes a and b) and classroom observational measures (outcomes c through e) are eligible for review in the Teacher Training, Evaluation, and Compensation topic area. However, the impact analysis on these outcomes *does not meet WWC group design standards* because the study does not provide sufficient information to assess attrition, and baseline equivalence was not established for the intervention and comparison groups. Teacher attitudes (outcomes f through k) were not eligible for this review because they do not fall within a domain specified in the Teacher Training, Evaluation, and Compensation review protocol.

⁸ The one study that meets WWC group design standards (Glazerman et al., 2008) reported findings for outcomes in the English language arts achievement, mathematics achievement, and teacher instruction domains; however, the outcomes are rated as *do not meet WWC group design standards* because the study authors did not provide the information needed to determine attrition, and the analytic intervention and comparison groups were not shown to be equivalent.

⁹ The WWC identified one other additional source related to Glazerman et al. (2008). The study does not contribute unique information to Appendix A and is not listed here.

¹⁰ The full study added a second year of induction services for intervention group teachers in seven districts, including three *NTC Induction Model* districts, which the study authors purposively selected based on factors such as mentor availability. Teachers who participated in the intervention for a second year received modified induction support that expanded on topics covered in the first year. The follow-up reports presenting findings through the second and third years of the study (Isenberg et al., 2009; Glazerman et al., 2010) did not provide findings separately for *NTC Induction Model* districts.

Recommended Citation

U.S. Department of Education, Institute of Education Sciences, What Works Clearinghouse. (2015, July). *Teacher Training, Evaluation, and Compensation intervention report: New Teacher Center Induction Model*. Retrieved from <http://whatworks.ed.gov>

WWC Rating Criteria

Criteria used to determine the rating of a study

| Study rating | Criteria |
|--|--|
| Meets WWC group design standards without reservations | A study that provides strong evidence for an intervention's effectiveness, such as a well-implemented RCT. |
| Meets WWC group design standards with reservations | A study that provides weaker evidence for an intervention's effectiveness, such as a QED or an RCT with high attrition that has established equivalence of the analytic samples. |

Criteria used to determine the rating of effectiveness for an intervention

| Rating of effectiveness | Criteria |
|-------------------------------------|--|
| Positive effects | Two or more studies show statistically significant positive effects, at least one of which met WWC group design standards for a strong design, AND No studies show statistically significant or substantively important negative effects. |
| Potentially positive effects | At least one study shows a statistically significant or substantively important positive effect, AND No studies show a statistically significant or substantively important negative effect AND fewer or the same number of studies show indeterminate effects than show statistically significant or substantively important positive effects. |
| Mixed effects | At least one study shows a statistically significant or substantively important positive effect AND at least one study shows a statistically significant or substantively important negative effect, but no more such studies than the number showing a statistically significant or substantively important positive effect, OR At least one study shows a statistically significant or substantively important effect AND more studies show an indeterminate effect than show a statistically significant or substantively important effect. |
| Potentially negative effects | One study shows a statistically significant or substantively important negative effect and no studies show a statistically significant or substantively important positive effect, OR Two or more studies show statistically significant or substantively important negative effects, at least one study shows a statistically significant or substantively important positive effect, and more studies show statistically significant or substantively important negative effects than show statistically significant or substantively important positive effects. |
| Negative effects | Two or more studies show statistically significant negative effects, at least one of which met WWC group design standards for a strong design, AND No studies show statistically significant or substantively important positive effects. |
| No discernible effects | None of the studies shows a statistically significant or substantively important effect, either positive or negative. |

Criteria used to determine the extent of evidence for an intervention

| Extent of evidence | Criteria |
|------------------------|--|
| Medium to large | The domain includes more than one study, AND The domain includes more than one school, AND The domain findings are based on a total sample size of at least 350 students, OR, assuming 25 students in a class, a total of at least 14 classrooms across studies. |
| Small | The domain includes only one study, OR The domain includes only one school, OR The domain findings are based on a total sample size of fewer than 350 students, AND, assuming 25 students in a class, a total of fewer than 14 classrooms across studies. |

Glossary of Terms

| | |
|--|--|
| Attrition | Attrition occurs when an outcome variable is not available for all participants initially assigned to the intervention and comparison groups. The WWC considers the total attrition rate and the difference in attrition rates across groups within a study. |
| Clustering adjustment | If intervention assignment is made at a cluster level and the analysis is conducted at the student level, the WWC will adjust the statistical significance to account for this mismatch, if necessary. |
| Confounding factor | A confounding factor is a component of a study that is completely aligned with one of the study conditions, making it impossible to separate how much of the observed effect was due to the intervention and how much was due to the factor. |
| Design | The design of a study is the method by which intervention and comparison groups were assigned. |
| Domain | A domain is a group of closely related outcomes. |
| Effect size | The effect size is a measure of the magnitude of an effect. The WWC uses a standardized measure to facilitate comparisons across studies and outcomes. |
| Eligibility | A study is eligible for review and inclusion in this report if it falls within the scope of the review protocol and uses either an experimental or matched comparison group design. |
| Equivalence | A demonstration that the analysis sample groups are similar on observed characteristics defined in the review area protocol. |
| Extent of evidence | An indication of how much evidence supports the findings. The criteria for the extent of evidence levels are given in the WWC Rating Criteria on p. 18. |
| Improvement index | Along a percentile distribution of individuals, the improvement index represents the gain or loss of the average individual due to the intervention. As the average individual starts at the 50th percentile, the measure ranges from -50 to +50. |
| Intervention | An educational program, product, practice, or policy aimed at improving student outcomes. |
| Intervention report | A summary of the findings of the highest-quality research on a given program, product, practice, or policy in education. The WWC searches for all research studies on an intervention, reviews each against design standards, and summarizes the findings of those that meet WWC design standards. |
| Multiple comparison adjustment | When a study includes multiple outcomes or comparison groups, the WWC will adjust the statistical significance to account for the multiple comparisons, if necessary. |
| Quasi-experimental design (QED) | A quasi-experimental design (QED) is a research design in which study participants are assigned to intervention and comparison groups through a process that is not random. |
| Randomized controlled trial (RCT) | A randomized controlled trial (RCT) is an experiment in which eligible study participants are randomly assigned to intervention and comparison groups. |
| Rating of effectiveness | The WWC rates the effects of an intervention in each domain based on the quality of the research design and the magnitude, statistical significance, and consistency in findings. The criteria for the ratings of effectiveness are given in the WWC Rating Criteria on p. 18. |
| Single-case design | A research approach in which an outcome variable is measured repeatedly within and across different conditions that are defined by the presence or absence of an intervention. |

Glossary of Terms

- Standard deviation** The standard deviation of a measure shows how much variation exists across observations in the sample. A low standard deviation indicates that the observations in the sample tend to be very close to the mean; a high standard deviation indicates that the observations in the sample tend to be spread out over a large range of values.
- Statistical significance** Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups. The WWC labels a finding statistically significant if the likelihood that the difference is due to chance is less than 5% ($p < .05$).
- Substantively important** A substantively important finding is one that has an effect size of 0.25 or greater, regardless of statistical significance.
- Systematic review** A review of existing literature on a topic that is identified and reviewed using explicit methods. A WWC systematic review has five steps: 1) developing a review protocol; 2) searching the literature; 3) reviewing studies, including screening studies for eligibility, reviewing the methodological quality of each study, and reporting on high quality studies and their findings; 4) combining findings within and across studies; and, 5) summarizing the review.

Please see the [WWC Procedures and Standards Handbook \(version 3.0\)](#) for additional details.



An **intervention report** summarizes the findings of high-quality research on a given program, practice, or policy in education. The WWC searches for all research studies on an intervention, reviews each against evidence standards, and summarizes the findings of those that meet standards.

This intervention report was prepared for the WWC by Mathematica Policy Research under contract ED-IES-13-C-0010.