



FINAL REPORT

# Increasing the Effectiveness of Educator Induction Programs in Colorado

*A Report to the  
Colorado Department of Education and the  
Colorado State Board of Education*

April 2013

## Table of Contents

I. Executive Summary .....	iii
II. Review of Colorado Teacher Induction Policies.....	1
Beginning Educators Served .....	2
Program Standards .....	2
Mentor Selection .....	2
Mentor Training.....	3
Mentor Assignment and Caseload .....	3
Program Delivery .....	3
Funding.....	4
Teacher Accountability .....	5
Program Accountability.....	5
III. Comprehensive Literature Review .....	7
IV. Review of Induction Program Applications and Program Reviews .....	10
Demographic Data for Programs .....	11
Program Site Reviews .....	12
Common Practices Used by Induction Programs .....	13
Innovative Program Practices.....	14
V. Policy Recommendations .....	16
1. Develop Statewide Induction Program Standards .....	17
2. Provide More Regular and Intensive Induction Program Oversight.....	18
3. Assess the Effectiveness and Impact of Induction Programs.....	20
4. Legislate Stronger Requirements for Educator Induction Programs .....	22
5. Provide Dedicated State Funding to Elevate Induction Program Quality and Enhance Mentor Capacity .....	27
6. Establish an Online Clearinghouse of Induction Best Practices and Key Program Tools .....	29

Appendices .....31

- A. Review of State Policies on Teacher Induction. Colorado State Policy Review:  
Teacher Induction ..... A-1
- B. NTC Literature Review on Teacher Induction. Annotated Bibliography .....B-1
- C. The Impact of Induction and Mentoring Programs for Beginning Teachers:  
A Critical Review of the Research. Richard Ingersoll and Michael Strong..... C-1
- D. NTC Induction Program Standards .....D-1
- E. Colorado Interview Protocol .....E-1

**Tables**

- 1. Frequency of Mentoring Activities Reported by New Teachers .....6
- 2. New Teacher Induction Plan Submission Dates .....11
- 3. New Principal/Administrator Induction Plan Submission Dates .....11
- 4. Program Length.....13

## I. Executive Summary

New Teacher Center (NTC) is pleased to have had the opportunity to apply its organizational expertise on behalf of the Colorado Department of Education (CDE) and the Colorado State Board of Education (CSBE) to strengthen state policy on new educator induction. Our focus as a national non-profit is to improve student learning by accelerating the effectiveness of new teachers. We achieve this through the development and design of high-impact induction programs and by shaping supportive policy and organizational contexts for those programs to thrive. Our mission is to ensure that every beginning educator in America is provided world-class support to advance their teaching and maximize their impact on their schools and students.

NTC's Educator Induction Consulting Services for the CDE (November 2011 to June 2012) had three main purposes. First, it aimed to determine the characteristics of a quality induction program; second, to examine current state policies and local practices that align with those quality indicators; and third, to provide recommendations on actions the state can take to increase the effectiveness of induction programs.

The specifics of our work involved:

- A review of Colorado's current laws and policies on induction.
- A comprehensive review of research-based literature on induction.
- An audit of more than 200 induction program plans on file at the CDE.
- Interviews with more than two dozen program leaders, administrators and teachers about induction programs operated by Colorado school districts, BOCES, charter schools and private schools.

Colorado recognizes that the accelerated development and support of beginning teachers and school leaders is an essential component of the state's vision for educator effectiveness. This work is in service of the vision of the Council for Educator Effectiveness to ensure that the state "provides teachers and principals ... with ongoing feedback and support needed to improve performance." Indeed, the work also is directly responsive to the Council's 2011 recommendation that the state strengthen requirements for the renewal and approval of educator induction programs.

### The Need for High-Quality Induction

Induction should not be looked upon as a remediative reform, but as a customized approach to accelerating an individual educator's development at a formative professional stage. Regardless of the quality or source of their preparation, beginning educators encounter a steady stream of distinct challenges during their initial years in schools and classrooms. Too many new educators struggle in isolation to navigate the steep learning curve characteristic of these early years. We know that teachers in their initial years are, on average, less effective than more experienced ones. 'Sink-or-swim' and other lesser approaches to new teacher induction exact a high price on new teachers, their students, and their school communities by failing to strengthen, support, and sustain these initial educators.

*High-quality induction programs can overcome challenges by accelerating new educators' professional growth and making them more effective faster.*

High-quality induction programs can overcome these challenges by accelerating new educators' professional growth and making them more effective faster. Research evidence suggests that comprehensive, multi-year induction programs reduce the rate of new teacher attrition, increase the professional growth of new teachers, provide a positive return on investment, and improve student learning. A federally funded, randomized controlled trial found that new teachers who received two years of comprehensive induction support produced greater student learning gains in mathematics and reading compared to peers who were provided prevailing and less intensive support.

Efforts to improve new teacher induction, and teacher effectiveness generally, must address teacher working conditions—including the critical role of school leadership, opportunities for teacher leadership and collaboration, and customized professional development—that greatly impact teachers' chances of success. Inducting new teachers into a weak professional community will limit the impact of high-quality induction. Weak professional environments rob new teachers of the opportunity to achieve their full potential, or push good new teachers to schools with a stronger professional community or out of the teaching profession entirely.

While all schools and students can benefit from more effective teachers, high-quality induction holds particular promise for hard-to-staff schools that serve a disproportionate number of low-income and minority students and employ a disproportionate number of beginning educators. In such schools, staff turnover is generally higher—and sometimes rampant—exacerbating inequities and hampering teaching and learning. High-quality induction programs help to provide the specialized support needed for new teachers to overcome these challenging professional environments. Induction also contributes to the transformation of these hard-to-staff schools into strong professional communities where educators want to stay and work—and where they can be successful practitioners.

*NTC research reveals that few states have comprehensive policies requiring high-quality induction for beginning teachers—and the state policies that do exist are implemented too sporadically.*

### The Role of State Policy

Existing induction programs vary in quality from old-fashioned “buddy systems” that provide limited emotional and logistical support to comprehensive, systematized initiatives that utilize carefully selected and trained mentors and provide structured time for interaction focused on improving new teachers' content knowledge, classroom management, and instructional skills. A primary aim for state policy is to establish an expectation that all new educators will be provided a meaningful level of instructional and pedagogical support, especially in those settings where they currently are not.

While the comprehensiveness and funding of state policies in the United States vary widely, they have been enacted to ensure the provision of induction support and the assignment of a mentor or coach, thereby enhancing the quality of teaching and increasing student learning. But simply requiring that new teachers be assigned a mentor without regard to mentor or program quality will not accelerate new teacher development, reduce teacher attrition or significantly impact student learning. Too many states that mandate induction do so in the absence of key policy elements like dedicated funding, strong program standards or mentor selection and training requirements.

NTC research reveals that few states have comprehensive policies requiring high-quality induction for beginning teachers—and the state policies that do exist are implemented too sporadically. Among the hundreds of thousands of educators NTC surveyed over the last several years through our Teaching & Learning Conditions Initiative, a sizeable percentage (as high as 30 percent) of first- and second-year teachers report that they are not formally assigned a mentor—even in states with such a requirement. Among those beginning teachers assigned a mentor, many never plan instruction with them, observe them, or receive support analyzing student work. Such data echoes the national analyses conducted by University of Pennsylvania professor Richard Ingersoll who has found that only one percent of induction programs are characterized by five intensive program elements.

Comprehensive state policies have a broad influence on the development and structure of local induction programs. While the absence of strong state policies does not prevent the growth of isolated examples of comprehensive teacher induction programs, a National Staff Development Council analysis of 2007-08 Schools and Staffing Survey data suggests that new teachers in states with more robust policies—including an active induction mandate—are more likely to be assigned a mentor and receive key induction supports. Uneven program implementation, however, speaks to an important state role beyond policy enactment. It is critical for state leaders to think about “policy” more expansively. With respect to new educator induction, this should include a regular assessment of policy implementation and consideration toward building the capacity of local educational leaders to prioritize and implement induction programs with fidelity to state policies and standards.

### Key Findings

In early March 2012, a team of five NTC staff conducted an audit of induction program plans on file at the CDE from 213 different educational entities. NTC reviewed all program plans and compiled key program data using a customized data collection tool that encompassed research-based program elements and program elements associated with NTC induction program standards. Specifically, we compiled program information on the data collection tool into 6 broad sections: (1) *Program Type/Educators Served*; (2) *Program Approval Dates*; (3) *Program Duration and Funding*; (4) *Foundational Program Elements*; (5) *Structural Program Elements*; and (6) *Instructional Program Elements*.

We utilized our program rankings, in part, to determine those programs with which we would conduct a more detailed site review. As part of this analysis, NTC conducted interviews with program leaders, administrators and teachers at 10 induction programs across the state of Colorado. Those included six school districts, two BOCES, one charter school and one private school. An intention of our selected sampling of districts was to look at several of the strongest induction program plans in order to distill the most innovative program practices being implemented within the state.

It is impossible to get a “real time” look at induction programs in Colorado through the plans on file at the CDE. The majority of those induction program plans are more than 10 years old, with a significant portion dating back to the mid 1990s. Only about one fifth of induction program plans were filed in the last five years. Nonetheless, NTC provided a comprehensive assessment of each Colorado induction program based

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upon the elements communicated within its program plan, and we rated each as *Establishing*, *Applying*, *Integrating* or *Innovating*.

Only 9 percent of Colorado induction programs rose to the “Integrating” level of program design. We rated none as “Innovating.” NTC found that approximately three quarters (74 percent) of induction program plans communicated design elements that placed them at the “Establishing,” or basic, level of program comprehensiveness. In many cases, it is difficult to suggest that such basic induction or mentoring programs are not doing the minimum required by state policy. From a program effectiveness standpoint, however, these programs are nowhere close to modeling practices that will result in the desired impact on teaching effectiveness.

### Common Design Elements:

- Most Colorado induction programs only support first-year teachers. Fifty-eight percent of programs reported a one-year induction period. Only 15 percent of program plans indicated serving beginning teachers for two or more years.
- While more than one-third of Colorado induction program plans did articulate a provision for compensating mentors, only 3 percent of plans described local funding sources for the program.
- Forty-two percent of program plans identify measurable program objectives, but fewer articulate how such objectives might be assessed or utilized for program improvement purposes. Only 23 percent of plans include a program self-evaluation at least once every five years, and only 25 percent of plans describe how such program evaluations will be used to inform program improvement.
- Most Colorado program plans (57 percent) provide information about the mentor’s primary role in observing and consulting with beginning teachers. Nearly half (46 percent) discuss whether or not mentors play a formal role in the evaluation of beginning teachers.

Twenty-one percent of Colorado induction programs report providing release time to mentors.

### Innovative Program Practices:

- Twenty-one percent of Colorado induction programs report providing release time to mentors. Seven percent of programs exhibiting the most extensive provision of time for induction and mentoring, including at least 30 hours of contact time between a mentor and beginning teacher annually.
- One district-based induction program uses the NTC mentor selection rubric to identify top-tier mentor candidates. Another school district differentiates mentor roles among three tiers of engagement: lead mentors, mentors to first-year teachers, and buddy mentors to second-year teachers.
- Formative assessment, or regular feedback on new teachers’ instructional practices, is at the heart of intensive induction programs. Twelve induction program plans communicated the most intensive formative assessment features.

- A departure from typical one-on-one mentoring, one district-based induction program utilizes an Induction Support Team and an Induction Design Team, involving mentors, instructional coaches, and content area staff, to create a more collaborative approach to mentoring.
- While few induction programs utilize a full-time program director, one program with a full-time director also utilizes an induction advisory board to solicit input from community members, parents and educators.
- Several school districts reported having successfully sought a dedicated mill levy to fund the local induction program or to compensate mentors.

### **Policy Recommendations**

To increase the effectiveness of induction programs and enhance the likelihood that such programs will accelerate the development and effectiveness of new educators, NTC recommends that Colorado take the following actions:

1. Develop Statewide Induction Program Standards
2. Provide More Regular and Intensive Induction Program Oversight
3. Assess The Effectiveness and Impact of Induction Programs
4. Strengthen Requirements for Educator Induction Programs.
5. Provide Dedicated State Funding to Elevate Induction Program Quality and Enhance Mentor Capacity.
6. Establish an Online Clearinghouse of Induction Best Practices and Key Program Tools.

(Read the detailed policy recommendations on pages 16-30 of this report.)

*NTC recommends that Colorado take six actions to increase the effectiveness of induction programs and enhance the likelihood that such programs will accelerate the development and effectiveness of new educators.*





## II. Review of Colorado Teacher Induction Policies

As one component of this project, NTC summarized Colorado's current laws, regulations and policies on new educator induction and mentoring [Appendix A]. This summary is consistent with NTC's *Review of State Policies on Teacher Induction* (available on NTC's web site at: <http://www.newteachercenter.org/policy/policy-map>). The Colorado induction policy summary is built around ten criteria:

1. **Teachers Served:** State policy should require that all teachers receive induction support during their first two years in the profession.
2. **Administrators Served:** State policy should require that all school administrators receive induction support during their first two years in the profession.
3. **Program Standards:** The state should have formal program standards that govern the design and operation of local teacher induction programs.
4. **Mentor Selection:** State policy should require a rigorous mentor selection process.
5. **Mentor Training:** State policy should require foundational training and ongoing professional development for mentors.
6. **Mentor Assignment and Caseload:** State policy should address how mentors are assigned to beginning teachers, allow for manageable mentor caseloads, and encourage programs to provide release time for mentors.
7. **Program Delivery:** State policy should identify key induction program elements, including a minimum amount of mentor-new teacher contact time, formative assessment of teaching practice, and classroom observation.
8. **Funding:** The state should provide dedicated funding to support local educator induction programs.
9. **Educator Accountability:** The state should require participation in and/or completion of an induction program to advance from an initial to professional teaching license.
10. **Program Accountability:** The state should assess or monitor program quality through accreditation, program evaluation, surveys, site visits, self-reports, and other relevant tools and strategies.

*Colorado's induction policies exhibit both strengths and weaknesses.*

Using these 10 criteria as a lens, Colorado's induction policies exhibit both strengths and weaknesses. Strengths include an induction program requirement for beginning teachers and school administrators as well as the connection between induction and educator licensure. Weaknesses include the absence of an explicit multi-year state induction program requirement and the devolution of responsibility for many mentor-quality

and program-delivery components to the local level. In addition, the state does not specifically attend to the provision of dedicated time for mentoring interactions. As our literature review [see Section III] indicates, these missing elements are some of the program components that have the strongest evidential base.

### Beginning Educators Served

Colorado is one of 27 states that require some form of induction or mentoring for new teachers, but it is not one of 11 that require at least a two-year program of support. Research evidence suggests benefits may accrue to teachers and their students only from two years of comprehensive, sustained induction. Colorado is one of three states (along with Rhode Island and Wisconsin) that establish an indeterminate or flexible induction period (“up to three years” in Colorado’s case). It is one of just 16 states that require mentoring support for beginning school administrators and principals, but it is not among the three that require a two-year support program for new school administrators.

### Program Standards

Colorado is not one of 15 U.S. states with formal induction program standards. Program standards establish a statewide vision for the purpose of induction and articulate the design elements that comprise a strong induction program. They provide the criteria and common language by which programs can develop, improve and be held accountable across a state system. A comprehensive set of foundational, structural and instructional program standards makes for a strong set of standards. Foundational elements include program vision, administration and evaluation. Structural elements include mentor roles, mentor selection and training, beginning teacher assessment, and beginning teacher professional development. Instructional elements include a focus on teaching practice and on equity for students. Ideally, program standards provide sufficient flexibility to allow for induction programs to be customized to meet local needs.

*Colorado is not one of 15 U.S. states with formal induction program standards.*

Colorado is among a group of 20 states that provide some detailed program requirements and guidance through regulations, administrative code, or informal guidelines. In Colorado, the Educator Licensing Act of 1991 requires that induction programs establish: (1) standards for mentor selection, training and release time; (2) an assessment model to review, evaluate and guide the program; (3) a process for the matching of mentors with inductees; (4) the primary role of the mentor as teacher, coach, advocate, support, guide and nurturer of new teachers; and (5) whether mentors will be included in the evaluation of inductees. Additional guidelines in the Colorado Code of Regulations require program activities to encourage professionalism and enhanced teacher performance (via demonstrations of improved instructional practices; improvement of educational experiences for all students; and adapting curriculum and instruction to accommodate populations of diverse students).

### Mentor Selection

Effective mentors are at the heart of every high-quality induction program. Mentor selection is critical given that the skills and abilities of an effective mentor are different from those of an effective classroom teacher. Colorado state policy requires school districts to establish standards and a process for the selection

of mentors. The state provides guidance as to mentor attributes, including that the mentor: (1) agrees to serve in that role; (2) is an experienced professional who models state standards and demonstrates excellence in practice; (3) works well with adults and is sensitive to others' viewpoints; (4) is an active and open learner; and (5) is competent in interpersonal and public relations skills. However, Colorado is not one of 29 states that explicitly require a minimum number of years of teaching experience or holding a professional teaching license as a foundational requirement for serving as a mentor. Nor is it among the five states that employ a specific definition of teaching effectiveness or excellence, such as positive teaching evaluations, as a mentor selection criteria.

### Mentor Training

Mentor training is critical given that effective mentors are required to utilize skills that they are likely to have little experience with as classroom teachers. These include facilitation of adult learning, classroom observation, and leading reflective conversations. Foundational mentor training and on-going professional development are important tools to ensure the provision of quality support aligned with program goals. Colorado is one of 31 states that mandate trained mentors, requiring school districts to establish standards and a process for mentor training. However, the state does not make any specific requirements with regard to the design or content of that training. Colorado is one of just 15 states that require local induction programs to provide "ongoing professional development and training" for mentors. The state also requires local program site administrators to receive training on induction.

### Mentor Assignment and Caseload

Colorado is not one of 22 states that most clearly articulate mentor assignment requirements. Instead, state policy devolves responsibility to school districts, simply requiring them to establish a process for "the matching of mentors with inductees." Colorado state program rules do suggest that "effective induction programs should consider" [emphasis added] the following program elements: (1) a close match between the teaching assignment of the mentor and inductee; (2) proximity between the two parties; and (3) personal styles not in conflict. Further, Colorado state policy encourages, but does not require, induction programs to consider providing "release time for both mentors and new teachers."

### Program Delivery

The aim of state policy should be to grow and sustain local induction programs that advance beginning teachers' practice and accelerate their effectiveness in the classroom. It can accomplish this by raising expectations through the articulation of research-based program elements. Such elements include: (1) a minimum amount of mentor-new teacher contact time; (2) formative assessment of new teacher practice; and (3) opportunities for new teachers both to be observed in their classrooms and to observe effective, veteran teachers. Nationally, nine states address all three elements. The comprehensiveness of these states' induction policies varies, but each has taken at least an initial step to codify expectations around time for mentoring interactions and to establish a vision for teacher induction clearly focused on improving the instruction of beginning teachers.

*Mentor training is critical given that effective mentors are required to utilize skills that they are likely to have little experience with as classroom teachers.*

Colorado does not require—but does encourage—programs to adopt certain induction program elements. The state encourages local induction programs to engage in collaborative efforts with higher education institutions, to provide release time for both mentors and new teachers, to provide mentor compensation, and to provide sufficient planning time for new teachers. Colorado is one of 30 states whose policies mention mentoring time, however it is not among the 11 states that set a minimum amount of contact time between a mentor and a beginning teacher or among the five states that identify a reduced teaching load as an option for new teachers.

*Critical to teacher development is the practice of capturing and using assessment data to guide the support of beginning teachers.*

Critical to teacher development is the practice of capturing and using assessment data to guide the support of beginning teachers. Formative assessment helps beginning teachers assess their emerging practice to identify areas of strength and areas for professional growth. It involves an ongoing process of data collection and analysis to inform next steps. It has three essential elements: (1) Standards that describe best practice and against which a teacher assesses his or her instructional practices; (2) Criteria that enable the teacher to measure growth and development; and (3) Evidence that demonstrates the achievement. Colorado is one of 16 states that details formative assessment requirements within its policies. The state requires programs to provide “substantive feedback to the inductee about performance,” and it asks local programs to commit to guiding new teachers in “the development of an induction portfolio... to encourage self-reflection and self-evaluation of educational practice ... and to document improved performance related to the [professional teaching] standards.”

Classroom observation is a critical tool for mentor teachers to observe the practice of beginning educators and for those new teachers to observe the classroom of the mentor or other effective veteran peers. A sustained cycle of repeated observations, feedback and discussion is a necessary induction component if the intent is to advance beginning teacher development. Unlike in 25 other states, requirements for classroom observation are not specifically addressed within Colorado’s policies.

### Funding

Funding is a key strategy for states to establish new teacher development as an educational priority. Funding legitimizes the state’s central role in accelerating new teacher effectiveness by regulating and supporting the quality of local induction programs—and recognizes the real costs associated with comprehensive, high-quality induction programs. State funding for induction also recognizes its status as a requirement during the initial stage of teacher licensure. Comprehensive induction programs can cost thousands of dollars per beginning teacher. States cannot and should not be expected to fund the full cost of induction programs, but state funding provides a critical base of support for local programs—especially for school districts, often high-need, that employ large percentages of new teachers. A combination of state, federal and local resources can help take a program from good to great. Research shows that it is an investment worth making. A 2007 analysis determined that the return on investment of a teacher induction program after five years was \$1.66 for every dollar spent. High-quality induction pays dividends through reduced teacher turnover costs, higher teacher retention rates, and greater teaching effectiveness.

Colorado does not provide dedicated funding for educator induction programs. During the 2010-11 school year, 18 states provided dedicated funding for induction and mentoring. That number was reduced to about 15 states in 2011-12.

### Teacher Accountability

The induction period is a distinct phase of teacher development, which coincides with the initial years of teacher certification. Requiring induction and mentoring to advance to a professional teaching licensure honors the importance of beginning teacher development and promotes a continuous professional growth orientation for teachers as they enter the profession. It also creates mutual accountability for new teachers, schools, districts and states to acknowledge and plan for the induction period.

In Colorado, all teachers who hold an initial or special services license must successfully complete an induction program in order to advance to a professional teaching license. Colorado is one of 22 states that currently takes this approach. The induction process is based on a growth plan, as determined by the teacher, which incorporates a number of potential sources of support (i.e. mentoring, college coursework, conferences, projects, etc.). Mentors provide input into the growth plan before being submitted to the state to be provided the next level of licensure. A further challenge for a state like Colorado is how it will align other related teaching policies with induction requirements, including newly required teacher evaluation models.

### Program Accountability

State induction policies are most successful when they create an environment where local programs can thrive. To assess the extent to which state policies are successful in achieving this goal, it is critical for states to develop thoughtful, robust program accountability systems. In doing so, the state can accomplish four key features of program quality: (1) program compliance; (2) attention to program implementation; (3) program improvement; and (4) outcomes-based program evaluation.

Colorado is not among the 22 U.S. states with the strongest policy focus on induction program assessment and improvement. Colorado school districts are expected to “establish an assessment model to review, evaluate and guide the induction program.” Each induction program is expected to conduct a self-evaluation every five years. The CDE may conduct visits to induction sites and survey participants regarding the effectiveness of the program, but there is little evidence that this authority has been utilized to inform program renewal or support program improvement.

In 2011, NTC administered the second iteration of the TELL Colorado Survey to assess teaching and learning conditions at the school, districts and state level. Of the 3,379 beginning teachers in Colorado who responded to the survey, more than one out of every five (22 percent) was never assigned a mentor. Of those new teachers who were assigned a mentor, many did not receive the kinds of supports that research demonstrates is necessary to improve performance and keep them in the profession

*State induction policies are most successful when they create an environment where local programs can thrive.*

**Table 1. Frequency of Mentoring Activities Reported by New Teachers**

Mentoring Activity	Never	Sometimes*	At Least Once Per Week
Observing My Mentor’s Teaching	45.4	49.0	5.6
Analyzing Student Work	28.7	54.5	16.7
Aligning My Lesson Planning With the State Curriculum and Local Curriculum	28.6	52.6	18.8
Reviewing Results of Students’ Assessments	27.7	57.1	15.2
Developing Lesson Plans	26.1	51.3	22.6
Being Observed Teaching by My Mentor	24.8	65.3	9.9
Reflecting on the Effectiveness of My Teaching Together	14.7	60.7	24.6
Addressing Student or Classroom Behavioral Issues	11.5	63.0	25.6

\* The “sometimes” category includes responses ranging from “less than once per month” to “several times per month.”

- Nearly three out of 10 beginning teachers never analyzed student work (29 percent), aligned their lessons with state or local curriculum (29 percent), or reviewed results of students’ assessment (28 percent) with their assigned mentor.
- More than one-quarter of those beginning teachers who did receive mentoring support never met with them to develop lesson plans (26 percent) or was not observed by their mentor (25 percent).

Furthermore, even the beginning teachers fortunate enough to be assigned a mentor often experienced variable quality in support. Only about four out of 10 new teachers acknowledged the support they received addressing instructional strategies (43 percent) and classroom management strategies (41 percent) strongly influenced their practice. Only about one-third of new teachers indicate the support they received in complying with policies (37 percent), collaborative work (35 percent), and creating a supportive, equitable classroom (35 percent) was helpful.

With more than one out of five beginning teachers not assigned a mentor, many issues that are critical to beginning teacher development and support are being left to chance. Policy efforts to systemically improve the quality of and access to mentoring support can help to enhance and expedite the mastery of pedagogical skill in Colorado’s newest teachers.



### III. Comprehensive Literature Review

The comprehensive review of research-based literature on induction [Appendix B] includes two main components—an annotated bibliography and a template that aligns the available research with NTC induction program standards and NTC induction policy criteria (as reflected in the state policy summary discussed in Section II of this report). The literature review arrays our summary of research against foundational, structural and instructional induction program elements as well as against state policy elements such as an induction mandate, program funding and program duration. The template notes areas required or addressed within Colorado state policies as well.

NTC reviewed a range of quantitative, qualitative and mixed-methods research and program evaluations, the majority peer-reviewed, but also a few independent reports, papers and evaluations that provided helpful insight. While much of the available research base comes from the United States, we also cited evidence from several foreign countries when it was available and potentially relevant. Also attached is the most recent and comprehensive published literature review on teacher induction (Ingersoll, Strong, 2010) [Appendix C]. This article was included in our own review, but is worth noting given its currency and as it offers additional insights and analysis of the existing research base on induction.

NTC prepared a summary table of exemplary program elements based on the literature review. While the research evidence on the impact of comprehensive, multi-year induction has strengthened in recent years, there continues to be a paucity of definitive evidence on all but a small number of program components. It is clear that bundles of multiple program elements contribute to program outcomes such as improved teaching practice, reduced new teacher attrition, accelerated teacher effectiveness and increased student learning. NTC believes that all of our articulated program standards and policy criteria are individually important, but that they exude greater power when they work in concert. We recognize that further research is required to understand the import of many of these individual program components and policies as well as their collective impact.

A summary table provided in our literature review (provided to the CDE in January 2012) outlines those induction program elements with the strongest research base and places them into two categories: *strong evidence* and *moderate evidence*. **Strong evidence** is characterized by the existence of independent, peer-reviewed research that demonstrates the element's role in contributing to program impact. **Moderate evidence** is characterized either by research that suggests the element is important within programs that have been shown to have demonstrated impact on outcomes and/or research steeped in a strong, theoretical basis that suggests the element is important to the needs of beginning educators and the efficacious operation of induction programs.

Induction program components that rose to the top through our literature review included multiple years of induction support; intensive mentor selection; utilization of mentors fully released from classroom teaching responsibilities; the assignment of a mentor to each new teachers; and regular contact time between mentors and new teachers. The table below summarizes those induction program components with the strongest research evidence.

NTC believes that all of our articulated program standards and policy criteria are individually important, but that they exude greater power when they work in concert.



### Induction Practices with Strong Research Evidence

#### ***Multi-Year Program***

A federally funded randomized controlled trial of comprehensive teacher induction found that third-year teachers who received two years of comprehensive induction support produced greater student learning gains compared to colleagues served by prevailing induction programs. For teachers who received only one year of comprehensive induction, there was no impact on student achievement.

#### ***Mentor Selection***

Several quasi-experimental studies, as well as a federally funded randomized controlled trial, found positive impacts of comprehensive induction models that included an intensive mentor selection process. An evaluation of a state-funded induction pilot program found that induction models with more stringent requirements for mentor selection provide more intense mentoring and a stronger focus on instruction.

#### ***Full-Release Mentors***

Numerous quasi-experimental studies and program evaluations, as well as a federally funded randomized controlled trial, found positive impacts of comprehensive induction models that included full-time mentors with caseloads of no greater than 12-17 beginning teachers. One quasi-experimental study compared the impact of full-release versus site-based mentors and found greater student achievement gains in classrooms of new teachers supported by full-time mentors.

#### ***An Assigned Mentor***

Research shows that beginning teachers who are assigned a mentor are much less likely to leave their school or teaching entirely.

#### ***Frequency of Mentor Contact***

Research evidence suggests that weekly contact between mentors and new teachers is a critical factor for program impact. Several studies and program evaluations, as well as a federally funded randomized controlled trial, found positive impacts of comprehensive induction models that included such regular contact.

### Induction Practices with Moderate Research Evidence

#### ***Provision of Mentor Training***

Numerous studies and program evaluations, including a federally funded randomized controlled trial, found positive benefits of induction programs that provided foundational training for mentors. Three studies quantified the amount of training at between 10-12 days per year. Research on the content of mentor training is less definitive.

#### ***On-Going Mentor Professional Development***

Numerous studies and program evaluations, including a federally funded randomized controlled trial, found positive benefits of induction programs that provided ongoing training or professional development for mentors. One study found positive impacts on teaching practice by mentors who participated in study groups for 6 hours each month.

#### ***Mentor Assignment***

Several studies indicate that mentor experience matters and that experienced teachers should commit to the role for several years. The research evidence is mixed on whether factors such as same-school, subject-area, and grade-level matching of mentors with new teachers is beneficial, but several studies show it may lessen attrition.

### **Induction Practices with Moderate Research Evidence (continued)**

#### ***Amount of Mentor Contact Time***

Numerous studies and program evaluations, including a federally funded randomized controlled trial, found positive benefits of induction programs that provided quantifiable amounts of mentor-mentee contact time. The research is less definitive on exactly how much time is needed, but in the available studies it ranged between one-to-two hours per week.

#### ***Formative Assessment of Teacher Practice (including Classroom Observation)***

At least three studies, including a federally funded randomized controlled trial, found positive impacts of comprehensive induction that included a formative assessment system to evaluate teaching practice, observations of the new teacher's classroom by the mentor, and opportunities for the new teacher to observe other teachers.

#### ***Beginning Teacher Professional Development***

Numerous studies, including a federally funded randomized controlled trial, found positive impacts of comprehensive induction models that included monthly professional development and/or a support network of beginning educators.

#### ***Focus on Instructional Practice***

A federally funded randomized controlled trial of comprehensive induction found student-learning impacts as the result of an induction treatment that included "a focus on instruction." A few other studies suggest that induction programs with a strong, intentional focus on new teacher practice can have greater impact.

#### ***Program Administration***

A federally funded randomized controlled trial, a quasi-experimental study, and other research found positive impacts of comprehensive induction models that included a program director or coordinator.

#### ***Principal/Site Leader Engagement***

A federally funded randomized controlled trial and a quasi-experimental study found positive impacts of comprehensive induction models that included a strong focus on communicating with and engaging school principals.

#### ***State Induction Mandate***

Several studies suggest a state induction requirement may increase the likelihood of the provision of mentoring or induction support to beginning educators.

#### IV. Review of Induction Program Applications and Program Reviews

In early March 2012, a team of five NTC staff conducted an audit of induction program plans on file at the Colorado Department of Education from 213 different educational entities (104 school districts, 38 charter schools, 57 private schools and 14 boards of cooperative educational services (BOCES)). There were 193 program plans that addressed induction support for beginning teachers and/or special services providers and 69 that addressed induction support for new administrators and/or principals.

NTC reviewed all program plans and compiled key program data using a customized data collection tool that encompassed research-based program elements and program elements associated with NTC *Induction Program Standards* [Appendix D]. We collected additional data required by the contract with the CDE, including program approval dates and program length.

NTC reviewed all program plans and compiled key program data using a customized data collection tool that encompassed research-based program elements and program elements associated with NTC *Induction Program Standards*.

Specifically, the data collection tool encompassed the elements required by the contract with the CDE (“compile demographic data (application data, approval date, scope of program) for all approved programs in the state for common practices; unusual practices; and other pertinent information”). It uses NTC *Induction Program Standards*, which we also utilized in the literature review component of the project, as a lens to determine the comprehensiveness of induction programs and to identify the presence of a wide array of individual foundational, structural and instructional program elements. (NTC Program Standards are a framework for program design, implementation and evaluation that was informed by more than 20 years of program implementation and collaboration with program leaders, policymakers and researchers across the country.) The tool also captured program information requested by the CDE (but not necessarily required by state policy) in the present iteration of its Induction Program Template (e.g., amount of contact and observation time, provider of mentor training, program self-evaluation every five years). And it captured information related to local funding, including mentor compensation.

Specifically, we compiled program information on the data collection tool into six broad sections:

1. **Program Type/Educators Served**—Whether the CDE has on file an approved induction program plan for a school district, BOCES, or private or charter school that serves all or some of the four classifications of educators that state policy requires to receive induction services: teachers, special services providers, principals, and administrators.
2. **Program Approval Dates**—The latest program approval date for the plan on file with CDE. Some are as recent as last year; others date back to 1994, when program plans were first required.
3. **Program Duration and Funding**—Basic information about length of an induction program, funding sources and levels, and mentor compensation.
4. **Foundational Program Elements**—These elements represent the platform upon which an induction program is built, mirroring NTC *Induction Program Standards* (and elements required by Colorado state policies), and looking at criteria such as program vision, leadership, context and evaluation, and the provision of time.

5. **Structural Program Elements**—These elements represent program components, practice and activities, closely mirroring NTC Induction Program Standards (and elements required by Colorado state policies), and looking at criteria such as mentor roles, selection, professional development and assignment, and formative assessment.
6. **Instructional Program Elements**—These elements represent a strategic focus on classroom practice and student learning, closely mirroring NTC Induction Program Standards, and looking at criteria such as instructional practices and a focus on equity and universal access.

### Demographic Data for Programs

It is impossible to get a “real time” look at induction program in Colorado by looking at program plans on file at the CDE. A handful of induction program plans were filed in the past year, while many others date back to the mid 1990s. Of programs with very old plans dating back to the 1994-95 school year, some are operating with a more recent plan that were not submitted to or were not on file at the CDE. (We learned this through our site reviews detailed in the next section.) Some districts whose plan was out of date, but which inquired about submitting a new plan within the past year, were told by the CDE not to given this anticipated investigation. Other districts in recent years were told that they didn’t need to re-submit their plans as long as there were only “minor revisions.”

**Table 2. New Teacher Induction Plan Submission Dates**

15+ Years Ago (1994-97)	10-14 Years Ago (1998-2002)	6-9 Years Ago (2003-2007)	5 Years Ago or Less (2008-12)
40%	24%	16%	20%

**Table 3. New Principal/Administrator Induction Plan Submission Dates**

15+ Years Ago (1994-97)	10-14 Years Ago (1998-2002)	6-9 Years Ago (2003-2007)	5 Years Ago or Less (2008-12)
49%	16%	13%	22%

We used the four-pronged NTC *Continuum of Program Development* as a guide to determine whether individual program-plan elements, aligned with NTC *Induction Program Standards*, represent a low-level (“establishing”), low/medium-level (“applying”), medium/high-level (“integrating”) and high-level (“innovating”) application of induction program design and implementation. These four levels represent increasingly complex and sophisticated program practices that are aligned with the Standards. Functionally, they can be used as the foundation for a cycle of continuous program improvement.

We provided a comprehensive assessment of each Colorado induction program, based upon the elements communicated within its program plan, and we rated each as *Establishing*, *Applying*, *Integrating* or *Innovating*. “Establishing” represents basic program strategies and practices structured to ensure that beginning teachers are provided a limited set of induction experiences. “Applying” represents an increasingly systematized process for mentor and beginning teacher professional development, formative assessment, stakeholder communication, and program evaluation. “Integrating” represents programs with systems of beginning teacher induction that involve collaboration, commitment, and coordination across stakeholder groups in which beginning teachers experience a multi-faceted and aligned program of support. “Innovating” represents an induction approach that is fully integrated into a larger, district-wide system that may extend to universities and regional/state initiatives and that provides aligned experiences for beginning teachers, mentors and principals to optimize the program’s impact on teacher effectiveness and student learning.

*In total, only 9 percent of Colorado induction programs rose to the “Integrating” level of program design.*

We used the Continuum as a guide to determine a program’s overall ranking along this continuum of program comprehensiveness. In the case of educational entities with separate program plans addressing beginning teachers and administrators, for example, we took note of important similarities and differences between the plans to arrive at an overall rating. In general, we placed greater weight on the elements of the induction plans focused on teachers, given the differences in the numbers of new teachers versus new administrators served by individual program plans, and given that often the induction plan for teachers was more up-to-date than the one for administrators and principals.

In total, only 9 percent of Colorado induction programs rose to the “Integrating” level of program design. We rated none as “Innovating.” NTC found that approximately three quarters (74 percent) of induction program plans communicated design elements that placed them at the “Establishing,” or basic, level of program comprehensiveness. From a compliance standpoint, it is difficult to suggest that many “basic” induction or mentoring programs are not meeting the minimum requirements of state policy. From a program effectiveness standpoint, however, such programs are nowhere close to modeling practices that will result in the desired impact on teaching effectiveness.

### Program Site Reviews

NTC conducted interviews, using a standardized Interview Protocol [Appendix E], with program leaders, administrators and teachers at 10 induction programs across the state of Colorado. Those programs included six school districts, two BOCES, one charter school and one private school. Of the school districts, two were large, one was small and three were of medium size. One school district could be characterized as urban (outlying city), two as urban/suburban, three as suburban and one as a rural town. Of the BOCES, one was comprised of a mixture of towns and rural areas, while another was comprised of a mix of cities, towns and rural communities. The charter school and the private school reviewed were each based in small urban communities. Given that we reviewed program plans (rather than program implementation), NTC in consultation with the CDE determined that phone interviews of program participants would provide sufficient data and information for the purpose of this evaluation.

We utilized our program rankings, in part, to determine those programs with which we would conduct a more detailed site review. In addition, we applied geographic considerations to ensure a representative sample of programs. An intention of our selected sampling of districts was to look at several of the strongest induction program plans in order to distill the most innovative program practices being implemented within the state.

### Common Practices Used by Induction Programs

Most Colorado induction programs only support first-year teachers. Fifty-eight percent of programs reported a one-year induction period. Only 15 percent of program plans indicated serving beginning teachers for two or more years. The program plans from approximately one quarter of induction programs in Colorado did not specify a length, but we can assume that most of these are one-year programs. Only about a quarter of programs (28 percent) provided a provision for the extension of induction program support to struggling new teachers.

<b>1 Year</b>	<b>2 Years</b>	<b>3 Years</b>	<b>No Length Indicated</b>
58%	11%	4%	27%

While more than one-third of Colorado induction program plans did articulate a provision for compensating mentors, few address issues related to program funding overall. Only 3 percent of plans described local funding source(s) for the program, and only 4 percent of plans identified the local funding amount. However, some of the programs plans that provided this information were dated and, given changes in the funding environment, are unlikely to represent the current status of induction program funding.

Despite a state requirement that induction programs “establish an assessment model,” fewer than half (42 percent) of program plans identify measurable program objectives. Far fewer articulate how such objectives might be assessed or utilized for program improvement purposes. Again, despite such a state requirement, only 23 percent of program plans specify a “self-evaluation” at least once every five years, and only 25 percent of plans describe how such program evaluations will be used to inform program improvement.

Most Colorado program plans (57 percent) provide information about the mentor’s primary role in observing and consulting with beginning teachers. Despite a state requirement, fewer than half (46 percent) report whether mentors play a formal role in the evaluation of beginning teachers. (In most instances, mentors provide formative feedback but do not officially evaluate new teachers.) Finally, 79 percent of program plans do articulate a process for determining successful program completion by beginning teachers.

## Innovative Program Practices

While more than 90 percent of induction program plans addressed the critical issue of mentoring time, only 21 percent of Colorado induction programs report providing release time to mentors. NTC reviewers tagged only 7 percent of induction-program plans as exhibiting the most extensive provision of time for induction and mentoring. At minimum, this includes the provision of at least 30 hours of annual contact time between mentors and beginning teachers (some combination of one-on-one time and periodic classroom observations). NTC typically recommends 1.25-2.5 hours per week of “protected time” for interactions between each mentor and beginning educator. In this case, our review team utilized 30 hours of annual contact time as a metric because of its frequent inclusion in more recent program plans filed using the CDE’s Office of Professional Services and Educator Licensing “Induction Program Template” that asks programs to provide specific information about “mentor hours.”

*While more than 90 percent of induction program plans addressed the critical issue of time, only 21 percent of Colorado induction programs report providing release time to mentors.*

Only 8 percent of program plans exhibited high-level features around mentor recruitment and selection and 4 percent of program plans exhibited high-level program features around mentor training. One district program uses the NTC’s mentor selection rubric to identify top-tier mentor candidates. Another school-district induction program we reviewed differentiates mentor roles. It utilizes three different levels of mentors. Lead mentors within each school are paid a \$1,000 stipend to identify new teacher mentors, provide mentor training, and communicate PD opportunities and identifies mentors for new teachers. Mentors support first-year teachers and are paid a \$500 stipend. Buddy mentors for second-year teachers are paid a \$150 stipend.

Formative assessment, or regular feedback on new teachers’ instructional practices, is at the heart of intensive induction programs. Less than 6 percent of Colorado induction program plans communicated an intensive focus on developing beginning teaching practice, while 38 percent of plans did not communicate this focus practice at all. One charter school and one school district utilized SMART Goals. Mentors and beginning teachers collaboratively write goals that are “Specific, Measurable, Attainable, Relevant and Timely” and they check in on them periodically over the course of the year.

Most Colorado programs provide one-on-one mentoring to new teachers except for one school district that has an Induction Support Team and Induction Design Team (involving mentors, instructional coaches, content area staff, and a fulltime program director). The Support Team helps the district with program implementation and creates a more collaborative approach to mentoring, moving away from the typical buddy system. The instructional coaches present in most of the district’s school buildings “facilitate the induction support team.”

Several school districts indicated a differentiated approach to new teacher induction. These districts offer a less intensive level of support to second-year teacher as compared with first-year teachers. Second-year teachers may be offered less frequent support, or may be assisted by a less prepared mentor or coach (one district terms its mentors of second-year teachers as “guides”). Despite the thought that goes into this strategy, it challenges research evidence that suggests the intensity of induction must be maintained over the course of two years in order to achieve teacher effectiveness gains.



Most programs have one individual who is not only in charge of induction, but also has a long list of other duties, so they have an inadequate amount of time to focus on overseeing the induction program. However, one district program leader we interviewed utilizes an induction advisory board—involving community members, parents and educators—to avoid operating “in isolation.” BOCES tend to operate the induction program but leave it up to the individual school districts to recruit and select mentors for their schools. This tends to create variability in mentor quality and program delivery even within single BOCES induction programs. Only 17 percent of plans describe a program director selection process and criteria.

Only 6 percent of Colorado induction program plans exhibited high-level practices related to program assessment and evaluation. Forty-five percent of program plans did not address this issue at all, despite the state requirement about identifying an “assessment model.” As one example of an innovative practice, one charter school where we conducted a site review evaluates the quality of the induction program as part of the principal’s annual performance review. Another charter school plan identifies student-learning outcomes as a key metric upon which program quality is evaluated.

Most program plans did not address the issue of program funding. From our site reviews, we were able to determine how a representative sample of induction programs is funded. A few districts indicated having gone to the community to seek dedicated mill levy funds to fund the local induction program overall or mentor salaries or stipends specifically. In lieu of dedicated state funding as is available in other states, identifying such local sources of funding and utilizing federal Title II, Part A formula funding may be the most immediate hope for greater investment in more comprehensive new educator support programs in Colorado schools.

*Only 6 percent of Colorado induction program plans exhibited high-level practices related to program assessment and evaluation.*



## V. Policy Recommendations

State induction policies strongly influence local induction programs. Ultimately, to be effective, these policies must be strategically designed and continuously assessed to meet the needs of new teachers, mentors, induction program leaders, and school districts. The mere existence of such policies is not a guarantor of universal access to such programs.

While our assessment is that the presence of strong state policies enables successful program development and sustainability, it is not sufficient. States also must support policy implementation and local program development by: communicating program vision; building state program infrastructure; developing program tools and modeling effective program design; providing training to mentors, program leaders, and school administrators; supporting program improvement through technical assistance (particularly for struggling programs and during periods of scale up); incorporating induction program data into state accountability systems and oversight processes; and evaluating the efficacy of local program models and the overall statewide induction policy.

*In 1991 Colorado became an early adopter of state-level legislation that coupled a required induction period with advanced teacher certification.*

In 1991 Colorado became an early adopter of state-level legislation that coupled a required induction period with advanced teacher certification. But the state has not revisited its policy in more than 20 years. Coupled with policy reforms to teacher evaluation (S.B. 10-191) and the state's overall focus on improving educator effectiveness (including induction as part of the Colorado Department of Education's framework for effective educators), now is the time to tackle improvements to new educator induction.

Colorado state policy reflects a dated vision of new educator induction. Communicated within state policy, induction appears to be focused more on orienting and socializing new educators than on accelerating their development and professional growth. High-quality induction, on the other hand, is reform-minded. It is focused on effective instruction and on developing habits of self-reflection, a mode of continuous improvement and a sense of teaching as a collaborative rather than a solitary endeavor. State policy needs to reflect that vision—and provide programs with resources and capacity to make it happen.

A quote from a Colorado induction program leader exemplifies what all good programs should strive for: "I want highly effective teachers who are good at their work [and] who improve student achievement. I don't want just happy teachers that are ineffective, because that is not a good mentor program. I want content, challenged teachers who are highly effective. My job is to make teachers go from good to great. Sometimes my work is helping people exit the system."

NTC believes that the following policy recommendations will transform Colorado's induction programs from "good to great" and will advance the state's vision for educator effectiveness:

## 1. Develop Statewide Induction Program Standards

Program standards establish a statewide vision for the purpose of induction and articulate the design elements that comprise a strong induction program. They provide the criteria and common language by which programs can develop, improve and be held accountable across a state system. A comprehensive set of foundational, structural and instructional program standards makes for a strong set of program standards. Foundational elements include program vision, administration and evaluation. Structural elements include mentor roles, mentor selection and training, beginning teacher assessment, and beginning teacher professional development. Instructional elements include a focus on teaching practice and on equity for students.

Well-designed program standards provide sufficient flexibility to allow for induction programs to be customized to meet local needs. That is critical in a state such as Colorado with both a culture of local control as well as a diverse set of urban, suburban and rural schools and districts.

***Recommendation 1.1:*** *The Colorado State Board of Education should initiate an effort to develop Colorado Induction Program Standards.*

The Rules for the Administration of the Educator Licensing Act of 1991 (1 Colorado Code of Regulations 301-37: 2260.5-R-13.01) state that “the following shall serve as standards and criteria for the approval of induction programs.” The opinion of NTC is that such rules do not and cannot truly function as a set of induction program standards in that they do not communicate and model all key program design principles and do not provide a framework for program implementation and evaluation.

As an initial step and building block to additional reforms, NTC recommends that the state initiate an effort to develop Colorado Induction Program Standards. NTC recommends either that the Colorado State Board of Education (CSBE) utilize its existing statutory authority (C.R.S. 22-60.5-204) to “establish standards and criteria for the approval of proposed induction programs,” or that the development of such Standards be mandated through legislative changes to the 1991 Educator Licensing Act [see Recommendation #4]. The development of such standards should be undertaken with all critical stakeholders, including teachers, administrators, their respective professional associations, the CSBE, the CDE, and higher education institutions.

Well-designed program standards provide sufficient flexibility to allow for induction programs to be customized to meet local needs.

### LEADING STATE POLICY EXAMPLES:

- **California’s** six Induction Program Standards focus on effective design principles and providing opportunities for participants to demonstrate effective teaching. Specifically, they address induction program rationale and design, communication and collaboration, support and professional development providers, formative assessment of new teacher practice, demonstrating effective teaching, and equity for all students.
- The **North Carolina** State Board of Education approved new Beginning Teacher Support Program Standards in 2010, as well as specific Mentor Standards. The five Program Standards focus on the provision of systemic support to new teachers, the selection and development of quality mentors,

mentoring for instructional excellence, beginning teacher professional development and formative assessment of beginning teacher and induction programs.

- **Ohio's** four-year Resident Educator Program of support and mentoring for new teachers is based upon six foundational Program Standards that also provide guidance for developing and implementing a high-quality induction program.

## 2. Provide More Regular and Intensive Induction Program Oversight

State induction policies are most successful when they create an environment where local programs can thrive. This requires dedicated program management from the state department of education (or other dedicated state-level entity) both in terms of program compliance with all relevant and necessary state policies as well as capacity to assist programs in improving quality.

***Recommendation 2.1: The Colorado Department of Education should strengthen its role in regularly reviewing program plans and the Colorado State Board of Education should strengthen criteria for the approval of induction programs.***

NTC recommends that the CDE strengthen its role in regularly reviewing new program plans and ensuring their compliance with state policies.

NTC recommends that the CDE strengthen its role in regularly reviewing new program plans and ensuring their compliance with state policies. At minimum, this should include a commitment by the CDE to review all plans for compliance with statutory and regulatory requirements. It may be helpful for CDE to utilize a triage model in conducting more intensive reviews of selected induction program plans. The state might leverage its accountability system to select programs for closer scrutiny that serve Priority Improvement and Turnaround schools and districts. These schools and districts might then be required to strengthen their induction programs as part of their school improvement plans. Further, there was a call from many of the program and teacher leaders we interviewed for the CDE to take more of a quality-focused approach to reviewing program plans. NTC believes that the adoption of state program standards will allow the CDE to assess struggling programs against such standards and identify areas of improvement in program design and implementation. [See Recommendation #1]

NTC also recommends that the CSBE utilize its existing statutory authority (C.R.S. 22-60.5-204) to “establish standards and criteria for the approval of proposed induction programs.” At minimum, this would require a new, standardized induction program plan template. This would ensure that the plans articulate components that meet new and existing statutory and regulatory requirements as well as address recommended state program standards.

***Recommendation 2.2:*** *The Colorado Department of Education and the Colorado State Board of Education should require all educator induction programs to submit a new plan annually, beginning in the 2013-14 school year.*

The CDE does not have current information about how local induction programs are designed and operated at its disposal. NTC’s review of teacher induction program plans on file at CDE determined that only 20 percent were less than five years old (2008 or later) and that 40 percent were more than 15 years old (dating back to the period 1994 to 1997). The numbers were similar for principal and administrator induction program plans. Twenty-two (22) percent were less than five years old, while 49 percent were more than 15 years old. NTC recommends that the CDE and the CSBE require induction programs to submit a new plan annually beginning in the 2013-14 school year. This will ensure that the CDE has the most current information on the structure of every induction program for program accountability, compliance and improvement purposes. In addition, programs should be required to submit such plans electronically and, once approved, all plans should be available in an electronic format to all interested stakeholders.

***Recommendation 2.3:*** *The Colorado Department of Education should conduct targeted site visits to induction programs.*

NTC recommends that the CDE conduct targeted site visits to induction programs. Induction programs might require on-site attention for several reasons. First, issues or concerns may emerge from weaknesses in their program plans. Second, inadequacies around program delivery or impact may emerge from surveys and evaluations. [See Recommendation #3] Third, the state could choose to review induction programs as a result of a school district’s “Priority Improvement,” or “Turnaround” status under the state’s accountability system. Fourth, the state could choose to review a random sample of induction programs across the functional spectrum. If the state were to require the collection of standardized data across programs [see Recommendation #4], that data could be used for comparison purposes and to drive decisions about programs needing state intervention.

NTC recommends that the CDE conduct targeted site visits to induction programs.

Site review teams might be comprised of state staff as well as identified program reviewers from local programs, state stakeholder organizations, or outside organizations—or as part of a statewide induction program leadership network [see next Recommendation]. Training for such review teams would be highly recommended, particularly if Colorado adopts a standards-based approach to program review.

***Recommendation 2.4:*** *The Colorado Department of Education should establish an Induction Leadership Network.*

NTC recommends that Colorado establish an induction program leadership network. A network of program leaders and programs accomplishes two purposes: (1) Builds capacity and focus on program improvement; and (2) Leverages local program expertise to evaluate and review programs, thereby distributing sole responsibility for program oversight away from the state. In a state with more than 200 induction programs, it is not realistic to think that CDE can sufficiently or meaningfully review program quality universally. Such a Network can draw upon and build program expertise out in the field and free up the CDE from fully staffing all program improvement and oversight activities. It potentially also can serve as a vehicle to conduct program site visits as suggested in the prior recommendation.

NTC operates such a national program network, the National Teacher Induction Network (NTIN), supported by the MetLife Foundation. Among other goals, NTIN focuses on sharing best practices and innovations among programs and gathering data to guide program development and improvement. At the state level, NTC leads the Illinois Induction Leadership Network (IILN), in partnership with the Consortium for Education Change, with support from the Grand Victoria Foundation and The Joyce Foundation. Through the IILN, the partners provide working models of standards-based continuous program improvement and accountability. It includes a peer review process through which teams from comparable programs offer feedback in relation to standards-based goals.

### LEADING STATE POLICY EXAMPLES:

- **California** includes the state's Beginning Teacher Support and Assessment (BTSA) induction programs to its statewide accreditation system (which also covers teacher preparation programs). The system features ongoing data collection and a seven-year cycle of activities, including at least one site visit. Additional requirements of BTSA programs include biennial reports and a program assessment. Further, each BTSA induction program must meet six preconditions to be granted initial or continuing approval by the state Commission on Teacher Credentialing.
- **Connecticut** state law requires the state department of education to "monitor district implementation of the Teacher Education And Mentoring (TEAM) Program to ensure fidelity to the program's plan and goals, including random district audits and observations by state personnel." TEAM Program Guidelines give the department the responsibility "to monitor district fidelity to the program." This can include the monitoring of a district's program plan, mentor logs, beginning teachers' workspace entries, mentor teachers' workspace entries, beginning teacher timelines for participation, mentor stipend payments, and district annual reports.
- **North Carolina** State Board of Education policies require each LEA and charter school to submit an annual report on its Beginning Teacher Support Program to the state Department of Public Instruction by October 1. The report must include evidence of demonstrated proficiency on the Beginning Teacher Support Program Standards and of mentor success in meeting Mentor Standards. In order to assist LEAs in progressing along the state's program continuum to provide the highest quality support to beginning teachers, LEAs must participate in a regionally based, annual peer review and support system.

*It is critical for Colorado to develop a robust induction-program accountability system in order to ensure four key features of program quality.*

### 3. Assess the Effectiveness and Impact of Induction Programs

It is critical for Colorado to develop a robust induction-program accountability system in order to ensure four key features of program quality. First, the state can assure program compliance with state laws, regulations and recommended program standards [see Recommendation #1]. Second, the state can lessen the disconnect between policy and implementation by determining whether districts are implementing programs in alignment with state policy and with fidelity to submitted program plans. Third, the state can establish an explicit focus on program improvement. Finally, the state can assess the influence of induction programs on student and teacher outcomes.

***Recommendation 3.1: The state should survey induction program participants annually.***

The CDE should survey participants (new teachers and mentors) in induction programs annually. This survey should collect data about type and receipt of mentoring services, new teacher self efficacy, helpfulness of mentoring and other professional development provided, etc. The panoply of questions about “New Teacher Support” on the TELL Colorado survey would largely accomplish these goals.

LEADING STATE POLICY EXAMPLES:

- The **South Carolina** Department of Education—in collaboration with Center for Educator Recruitment, Retention, and Advancement (CERRA)—administers an annual teacher assistance and support survey. School districts administer it to all mentors, all teachers served by mentors, and all school administrators who work directly with mentors. Districts must analyze and review the results of this survey and must use the results as the basis for changes in order to continuously improve their induction and mentoring programs.
- The NTC Induction Survey has been utilized by states such as **Oregon** (and by school districts across the country) to provide an assessment of district induction programs. Completed online, the Survey provides state and district program leaders with reports that reflect beginning teachers’, mentors’, and site administrators’ responses to questions that assess the provision of induction and mentoring supports and services.

***Recommendation 3.2: The Colorado Department of Education should conduct a comprehensive evaluation of its induction policies and programs every five years.***

The CDE should conduct a comprehensive evaluation of its induction policy and local induction programs at least once every five years. This is an opportunity for the state to assess the impact of induction programs on desired outcomes, including teacher efficacy, teacher retention, and student learning. States such as Illinois and Oregon have state laws that reserve a portion of any induction funding for the purposes of evaluation. States such as Alaska and Delaware conduct regular program evaluations in partnerships with institutions of higher education. Other states (Illinois, North Carolina, South Carolina) engage in regular induction program evaluation.

LEADING STATE POLICY EXAMPLES:

- The **Alaska** Statewide Mentor Project, through its partnership with the University of Alaska, ensures that research is funded and supported. It includes evaluations of mentor professional development; surveys of new teachers, mentors, and principals; summaries of new teacher growth and practice; and investigations into teacher retention. More recently, a statistical analysis of mentoring and student achievement gains has been conducted and results distributed.

*The CDE should conduct a comprehensive evaluation of its induction policy and local induction programs at least once every five years.*



- **Delaware** conducts an annual evaluation of induction programs in partnership with the Institute for Public Administration at the University of Delaware. The most recent analysis looks at the results of a statewide survey of more than 500 new teachers in their first three years in the profession and compares it to results from earlier years.
- **North Carolina** law requires the state, every five years, to formally review Beginning Teacher Support Programs to review evidence and verify that program proficiency is demonstrated on all program standards.
- **Oregon** state law holds the state Department of Education responsible for the regular and ongoing evaluation of educator mentoring programs. The law reserves 2.5 percent of program funding for evaluation. It may include assessments of: (1) The effectiveness of the mentorship program in the retention of beginning teachers and administrators in the school district and in the profession; and (2) Student performance on statewide and other assessments.
- **West Virginia** monitors implementation of the beginning teacher internship program requirements through the state's education accreditation system. The state Office of Education Performance Audits specifically looks at internship program implementation within its audits of individual schools and districts.

#### 4. Legislate Stronger Requirements for Educator Induction Programs

The research evidence is strong that induction must be multi-year in scope and of sustained intensity during that two-year period to generate the desired benefits on teaching practice and student learning. The fact that only 15 percent of Colorado induction programs report that they offer induction support to new teachers for at least their first two years suggests that the state is not maximizing the benefits of induction.

***Recommendation 4.1: Colorado should require every beginning teacher to receive induction support of at least two years in duration.***

The state should overhaul the 1991 Educator Licensing Act that currently allows programs to determine the length of the induction period ("up to three years"). It should require induction programs to support beginning teachers during their first two years in the profession. The state may wish to exempt certain teachers from the two-year requirement by allowing for a one-year induction period for those with past teaching experience (either in Colorado or out-of-state).

#### LEADING STATE POLICY EXAMPLES:

- **Delaware** provides support for all new teachers during their first three years in the profession, in addition to providing support to experienced teachers new to the state or new to a licensure category during their first year of employment.

*The state should overhaul the 1991 Educator Licensing Act that currently allows programs to determine the length of the induction period ("up to three years").*

- **Iowa** state law requires induction programs to provide a minimum of “a two-year sequence” of support to all new teachers. The state also provides for an optional third year, at the expense of the district or area education agency, if necessary for a teacher to meet the requirements of a career-level teaching license.
- **Utah’s** Entry Years Enhancement in Quality Teaching program provides all new teachers induction support during their first three years in the profession.

***Recommendation 4.2: Colorado should require every beginning school administrator to receive induction support of at least two years in duration.***

Colorado should establish a two-year induction requirement for new principals (and superintendents). The research is less clear as to the impact of induction on the practices of school administrators; however, it is clear that school leadership is second only to teaching quality as the most important school-based variable for student learning. Through professional development and direct coaching, school and district administrators need an opportunity to build leadership capacity, learn how to serve as instructional leaders, observe and evaluate teaching, and to create school conditions that support teacher development and student learning. Colorado should ensure that all beginning principals, administrators and superintendents receive induction support during their first two years on the job.

Colorado should establish a two-year induction requirement for new principals (and superintendents).

LEADING STATE POLICY EXAMPLES:

- **Missouri** requires all new school administrators to participate in a district-provided induction program during their first two years.
- **New Jersey** requires all new principals to participate in a two-year residency program for principal certification. New Jersey Leaders to Leaders provides trained mentors and a range of continuing professional development programs and services to support new school leaders in successfully completing the state-required two-year Residency for Standard Principal Certification.

***Recommendation 4.3: Colorado should establish clear expectations for sufficient, dedicated time for one-on-one mentoring and classroom observations within its educator induction policies.***

One of the program design elements most associated with impacts on teaching effectiveness and student learning is the frequency and duration of mentor-mentee contact time. NTC typically recommends 1.25-2.5 hours per week of “protected time” for interactions between each mentor and mentee. Without sufficient time to develop a mentoring relationship characterized by frequent and substantive interactions, policy and programmatic intent is undermined and the likelihood of improved new teacher effectiveness and student achievement is greatly lessened. Unless specific requirements around time are in place, competing priorities at the school site tend to overshadow time for such interactions. This often yields limited or no time for meaningful instructional conversations and classroom observations, and therefore diminishes (or negates altogether) effects on student and teacher outcomes.



NTC recommends that Colorado state policy include a stronger focus on the critical issue of mentoring time. NTC is somewhat agnostic on the specific policy mechanism used to ensure such regular, dedicated time. States have generally taken one of two approaches. First, 11 states have established a minimum amount of contact time between a mentor and a beginning teacher, on a weekly, semester or annual basis. Others have built strong program requirements governing mentor-mentee interactions within their policies or induction program standards [see Recommendation #1], without quantifying a minimum amount of time.

### LEADING STATE POLICY EXAMPLES:

- **Connecticut** state law requires local school boards to “ensure substitute teacher coverage for mentors and beginning teachers to participate in the activities and modules” required in the district’s teacher education and mentoring plan.
- **Kentucky** state law requires each mentor teacher to spend a minimum of 70 hours working with a beginning teacher. Twenty (20) of these hours must be in the classroom and 50 hours in consultation outside of class or attending assessment meetings.
- **Maryland** state policy requires induction programs to include “a cadre of full-time or part-time mentors to support teachers.” It requires ongoing support from a mentor, including regularly scheduled meetings during non-instructional time, and regularly scheduled opportunities for new teachers to observe or co-teach with skilled teachers. It encourages programs to reduce the teaching loads of beginning teachers and reduce or eliminate non-instructional responsibilities of mentor teachers.
- **North Carolina’s** Beginning Teacher Support Program Standards require programs to provide time to mentors “to work with beginning teachers during and outside of the school day” and to provide mentors and beginning teachers “protected time to engage in required mentoring and induction-related activities.”
- **Oregon** state law requires state-funded mentoring programs to provide frequent contact, “totaling a minimum of 90 hours” annually, between the mentors and beginning teachers and administrators.

NTC recommends that Colorado state policy include a stronger focus on the critical issue of mentoring time.

***Recommendation 4.4: Colorado should require induction programs to provide release time for mentors and should encourage programs to utilize mentors fully or partially released from classroom teaching.***

Existing state criteria for approval and review of induction programs (1 C.C.R. 301-37: 2260.5-R-13.01) recommend but do not require the provision of release time for mentors. As a result, only 21 percent of induction program plans on file at the CDE indicate the provision of some amount of mentor release time. Research evidence underscores the importance of regular, sufficient contact time between mentors and new educators. Many studies also show positive impacts on teaching practice, teacher retention and student achievement from induction programs that employ full-time teacher mentors.

Colorado state policy, at minimum, should require that induction programs provide some dedicated release time for mentor teachers and principal coaches. The state also should communicate the many benefits that

derive from full-time teacher mentors, incentivize programs to fully release such mentors from classroom duties, and encourage smaller districts to join together in consortia to enable the development of a carefully selected, highly trained cadre of full-time mentor teachers.

***Recommendation 4.5:*** *Colorado state policy should strengthen the definition of the role of the mentor and the qualifications for serving in that role.*

The Educator Licensing Act of 1991 defines “the primary role of the mentor as teacher, coach, advocate, support, guide and nurturer of new teachers.” State regulations define a mentor as “an experienced professional who models state standards and demonstrates excellence in practice” and “who has demonstrated outstanding teaching.” Research evidence attests to the importance of being choosy about which educators serve as mentors. Numerous evaluations and studies have shown that mentoring support tends to be more intensive and more strongly focused on improving classroom instruction when the pool of mentors is more selective.

Colorado should establish more specific language about a mentor’s role and who is eligible to serve as one. State policy should clearly communicate and structure the primary role of the mentor around accelerating the professional development of beginning teachers and contributing to successful teaching evaluations prior to receiving tenure and advanced licensure. The adoption of S.B. 10-191, the state’s teacher and principal evaluation law, provides an opportunity to draw upon a record of effectiveness (as demonstrated by positive teaching evaluations) as a criterion for mentor selection. States such as Delaware, Kansas and Washington have taken this approach, making positive teaching evaluations a criterion for selection as a mentor. This squares with research that suggests that more successful mentors tend to exhibit instructional practices (such as would be identified through an evaluation system) consistent with effective teaching.

*Colorado should establish more specific language about a mentor’s role and who is eligible to serve as one.*

Further, Colorado may wish to draw upon the example of **South Carolina** regarding the evaluation of mentor teachers. South Carolina is the only state that explicitly defines how mentor teachers must be evaluated. It articulates a set of 12 specific skills and abilities, including knowledge of beginning-teacher professional development and effective adult learning strategies, familiarity with the state’s performance assessment system, and the willingness and ability to engage in non-evaluative assessment processes, including planning and reflective conversations with beginning teachers about their classroom practice.

#### LEADING STATE POLICY EXAMPLES:

- In **Delaware**, a mentor must “have satisfactory teaching evaluations” and lead mentors must successfully complete a series of questions and observations in order to qualify for the position.
- **Kansas** state policy defines a mentor as a teacher with three consecutive years of prior employment in the school district, whose selection is based on demonstrated exemplary teaching ability, and who has successfully completed a mentor-training program. The criteria that determine exemplary teaching include recent evaluations and recognition through national and state programs like the National Board for Professional Teaching Standards and the Kansas Exemplary Educators Network.

- **New Jersey** state law establishes minimum criteria for mentor selection. Criteria include: (1) a minimum of three years experience in the district; (2) teacher commitment to the goals of the local mentor plan; (3) confidentiality with the new teacher; (4) demonstrated exemplary command of content area knowledge and of pedagogy; (5) experience and certification in the subject area in which the novice teacher is teaching; (6) knowledge about the social and workplace norms; (7) knowledge about the resources and opportunities in the district; (8) letters of recommendation; and (9) agreement to complete comprehensive mentor training.

***Recommendation 4.6:*** *Colorado should define what constitutes successful completion of an induction program by a beginning teacher.*

Colorado should consider defining what constitutes an individual educator's successful completion of a local induction program.

Colorado should consider defining what constitutes an individual educator's successful completion of a local induction program. In other states, the distinction between completion of and participation in an induction program is often subtle. In the clearest examples, successful "completion" includes a performance assessment or a comprehensive evaluation, whereas "participation" may mean that the teacher was supported within an induction program. Some states require the submission of documentation to verify induction program participation.

In Colorado a linkage to initial teacher licensure already exists under the Educator Licensing Act of 1991. Through S.B. 10-191, Colorado has expressed demonstrated effectiveness as the focus of all the other policy elements shaping the teaching profession, including teacher preparation and support. Coupled with the design of a performance-based licensure system, the state should align reformed teacher induction policies by defining "success", all or in part, by positive teaching evaluations received by beginning educators.

### LEADING STATE POLICY EXAMPLES:

- **Iowa** requires the successful completion of a two-year induction program in order to advance to the career-level teaching certificate. This includes a comprehensive evaluation at the end of the induction period to determine whether a teacher meets the expectations to move to the career level. There also is a provision to provide a third year of support for the teacher to meet the expectations for a standard license.
- In **Ohio**, Resident Educator license holders must successfully complete the state's Resident Educator Program that requires participation in induction and mentoring and successful completion of a performance-based assessment to advance to a Professional Educator License.
- **Utah** requires all beginning teachers to fulfill the requirements of the state Entry Years Enhancement program to advance to a Level 2 teaching license. All new teachers must satisfactorily collaborate with a trained mentor, pass a required pedagogical exam (Praxis II), complete three years of employment and evaluation, and compile a working portfolio.
- **West Virginia** requires school principals to verify that new teachers have completed the beginning teacher internship program, to make a final evaluation of the performance of the beginning teacher, and to recommend full professional status, continuing internship status, or to discontinue employment.

***Recommendation 4.7: Colorado should require induction programs to engage in regular, ongoing self-assessment.***

The state’s existing program requirement for “a self-evaluation every five years” is woefully insufficient to ensure an outcomes-based focus and attention to program improvement. While a five-year review cycle may be reasonable at the state level, attention to the delivery of induction services, the perception of the value of such services by participants, and the effectiveness of such support must be part of a continuous program improvement cycle locally. In addition, Colorado may wish to standardize the type of induction data that programs must collect. Such data would allow for comparisons between programs and could potentially be utilized by the state in its program oversight and program improvement roles. [See Recommendation 3.3]

**LEADING STATE POLICY EXAMPLES:**

- **Maryland** requires local school systems to include their comprehensive induction program report in their Bridge to Excellence Master Plan Annual Update to the Maryland State Department of Education. The report must include a description of the mentoring program; data, including the number of probationary teachers and the number of mentors who have been assigned; and how the effectiveness of the program is measured.
- **South Carolina’s** state induction program guidelines require district administrators to monitor and evaluate the quality of their induction and mentoring trainings and the implementation of their induction and mentoring program annually. Districts must use multiple methods of evidence gathering and provide necessary technology to collect, compile, and analyze evaluation data. They must establish and maintain a system for the annual evaluation of their induction plan, a system for the regular collection of feedback from all participants regarding program implementation, and a comprehensive system of formative program evaluation involving key program stakeholders.

*The state’s existing program requirement for “a self-evaluation every five years” is woefully insufficient to ensure an outcomes-based focus and attention to program improvement.*

**5. Provide Dedicated State Funding to Elevate Induction Program Quality and Enhance Mentor Capacity**

Funding is a key strategy for states to establish new teacher induction and mentoring as an educational priority. Funding legitimizes the state’s central role in accelerating new teacher effectiveness by regulating and supporting the quality of local induction programs—and recognizes the real costs associated with comprehensive, high-quality induction programs. State funding for induction also recognizes its status as a requirement during the initial stage of teacher licensure.

Comprehensive induction programs can cost thousands of dollars per beginning teacher. States cannot and should not be expected to fund the full cost of induction programs, but state funding provides a critical base of support for local programs—especially for high-need school districts that employ large percentages of new teachers. A combination of state, federal and local resources can help take a program from good to great. Research shows that it is an investment worth making. A 2007 analysis determined that the return on investment of a teacher induction program after five years was \$1.66 for every dollar spent. A recent analysis of “evidence-based policy options” by the Washington State Institute for Public Policy reported that

every dollar invested in new teacher induction offered a benefit-to-cost ratio of greater than \$57. High-quality induction pays dividends through reduced teacher turnover costs, higher teacher retention rates, and enhanced teaching effectiveness.

NTC interviews with induction program leaders across Colorado identified funding as one of the greatest challenges. One program director invoked a “Field of Dreams, build it and they will come strategy,” suggesting that if the state provided dedicated funding for induction that programs would elevate the quality of induction supports. Others defended their bare-bones approach to induction programming. One program leader described a “program that’s stripped down to the basics” because of the lack of resources.

***Recommendation 5.1: Colorado should establish a targeted funding stream for induction programs as part of its investment in educator effectiveness.***

The state of Colorado should share the investment in new educators with local schools and districts. Given that the state currently does not provide any dedicated funding for induction programs, it is important to recognize that providing universal funding for every induction program across Colorado may not be achievable, at least not immediately. Fortunately, numerous strategies exist for scaling up to statewide funding, making targeted investments, and offering limited competitive funding for induction. Historically, states such as California (in the late 1980s) and Illinois (in 2006) initiated state-funded pilot programs to grow local induction program models. Other states, such as Connecticut and South Carolina, fund state-sponsored mentor training, in addition to providing local program funding. Hawaii, Maryland and Rhode Island have built mentor training (and the development of state-level induction programs) into their Race to the Top grants. Three states—New York, North Dakota and Oregon—currently make state funding for induction available through competitive grant programs with limited reach. The CDE might also consider the targeted use of a portion of its 5 percent share of federal Title II, Part A funding to invest in new educator support. This could involve directly funding the highest quality, most innovative induction strategies, funding districts with the highest needs, or funding statewide program activities, such as foundational mentor training or comprehensive program evaluation.

*NTC interviews with induction program leaders across Colorado identified funding as one of the greatest challenges.*

Another funding strategy for Colorado might involve a required local match, either cash or in-kind. Prior to the recent suspension of its policy, the state of California had required a \$2,000 in-kind match to leverage state funding for the state’s Beginning Teacher Support and Assessment program. Local education agencies can leverage federal Title II, Part A funding as all or a portion of such a local match.

### LEADING STATE POLICY EXAMPLES:

- State funding of the **Alaska** Statewide Mentor Project supports program implementation, mentor training, program evaluation, and other program-related costs.
- **Connecticut’s** Teacher Education And Mentoring (TEAM) program receives state funding of \$4.1 million that supports mentor stipends, mentor and administrator training, and training for reviewers of TEAM reflection papers.



- The **North Dakota** Teacher Support System provides state funding for first-year teacher induction in participating districts. Districts must provide up to four days of release time to mentors and beginning teachers for program activities each semester. The state reimburses districts up to \$600 per year for substitute costs and also funds mentor training.
- **Oregon's** competitive Beginning Teacher and Administrator Mentoring grant program provides the most promising induction program applicants with up to \$5,000 annually for each full-time equivalent beginning teacher and administrator.

## 6. Establish an Online Clearinghouse of Induction Best Practices and Key Program Tools

The Rules for the Administration of the Educator Licensing Act of 1991 (1 C.C.R. 301-37: 2260.5-R-13.01) require the CDE to “provide technical assistance to school districts in the development of induction programs” and to “disseminate information concerning induction programs.” The provision of technical assistance, of course, is a challenge to resource-constrained state agencies across the country and necessitates a re-orientation among staff that may not be used to playing such a role. While some basic induction program information is currently provided on the CDE web site, there are additional steps that an entity such as the CDE can take to move the needle forward.

***Recommendation 6.1:*** *Colorado should create an online resource center for information about high-quality new educator induction.*

The CDE should establish an online induction toolkit that highlights key tools and best practices in induction that can guide the development and reform of local induction programs throughout Colorado. Given the state culture of local control, the widely varying programmatic contexts for induction, the wide variety of allowable program providers, and the absence of clear research evidence around certain components or programmatic approaches to induction, a focus on building capacity, providing guidance, and sharing resources and tools may be a smart accompaniment to a simultaneous push for induction standards [see Recommendation 1] and stronger program requirements [see Recommendation 4].

Such a toolkit should include publicly accessible induction program plans. It should highlight innovative program practices, including some highlighted in this report, from Colorado and perhaps other states. And it might include state-level resources and tools, such as mentor selection rubrics, an induction program continuum, and funding models, that local programs could utilize or adopt.

### LEADING STATE POLICY EXAMPLES:

- **Illinois** has adopted Teacher Induction Program Standards comprised of nine elements, including program goals and design, development of beginning teacher practice, and mentor selection and assignment. In addition, the state has provided an Induction Program Continuum as guidance for local programs. It provides descriptors for four performance levels (Establishing, Applying, Integrating, and Systematizing) of program implementation that allows for self-assessment against the Program Standards.

*The CDE should establish an online induction toolkit that highlights key tools and best practices in induction that can guide the development and reform of local induction programs throughout Colorado.*

*New Jersey has created the Mentoring for Induction Quality toolkit.*

- **New Hampshire** has created an Induction-with-Mentoring Toolkit that incorporates a set of standards for mentoring and induction programs. It provides district programs with information about the developmental nature of programs and allows them to rate themselves as “beginning”, “developing” or “establishing” within each program element. The tool allows both for self-assessment and action planning for program improvement.
- **New Jersey** has created the Mentoring for Induction Quality toolkit, which provides standards, inquiry-based questions, and templates for thinking about/developing action-plans around program implementation and improvement. These tools incorporate a focus on mentor selection, professional development, content of interactions, mentor support and accountability, collaboration with key stakeholders, program evaluation and operational elements of program design and implementation.

## *Appendices (posted on following pages, except where noted)*

### **Appendix A**

*Review of State Policies on Teacher Induction, Colorado State Policy Review: Teacher Induction.*

Available on the New Teacher Center website at:

<http://www.newteachercenter.org/policy/policy-map>

<http://www.newteachercenter.org/state/colorado>

### **Appendix B**

*NTC Literature Review on Teacher Induction and Annotated Bibliography*

### **Appendix C**

"The Impact of Induction and Mentoring Programs for Beginning Teachers: A Critical Review of the Research." Richard Ingersoll and Michael Strong.

Citation: Ingersoll, R. and Strong, M. (2011). "The Impact of Induction and Mentoring Programs for Beginning Teachers: A Critical Review of the Research." *Review of Education Research*. Vol. 81(2), 201-233.

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### **Appendix D**

*NTC Induction Program Standards*

This document may be ordered on the New Teacher Center website at <http://www.newteachercenter.org/products-and-resources/inductionprogram-resource/induction-program-standards>.

### **Appendix E**

*Colorado Interview Protocol*



## *Appendix A*

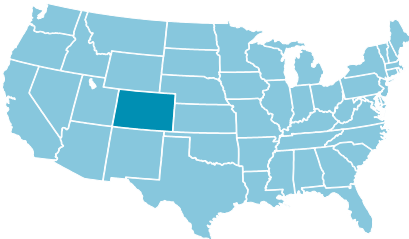
*Review of State Policies on Teacher Induction. Colorado State Policy Review: Teacher Induction.*

Available on the New Teacher Center website at:

<http://www.newteachercenter.org/policy/policy-map>

<http://www.newteachercenter.org/state/colorado>

## Colorado



The New Teacher Center's 2011 *Review of State Policies on Teacher Induction* provides comprehensive summaries for all 50 states. For each state, the NTC reviews the presence or absence of policies related to 10 key criteria that are most critical to the provision of universal, high-quality induction and mentoring support for beginning educators. The state summaries capture all relevant policies, statutes, regulations, induction program standards, and other guidance on new teacher induction and mentoring.

### 1. Teachers Served:

**State policy should require that all new teachers receive induction support for at least their first two years in the profession.**

All teachers who hold an initial or special services license must receive induction support. The state does not require a minimum number of years that new teachers must participate in an induction program; school districts can determine the length of induction, up to three years. State-approved induction programs may include, but shall not be limited to, supervision by mentor special services providers and ongoing professional development and training, including ethics and performance evaluations. [Colorado Revised Statutes (C.R.S.) [§§ 22-60.5-204](#) and [22-60.5-213](#)]

### 2. Administrators Served:

**State policy should require that all school administrators receive induction support for at least their first two years in the profession.**

All new school principals and administrators are expected to participate in an induction process. The state does not require a minimum number of years that new administrators must participate in an induction program; school districts can determine the length of induction, up to three years. [C.R.S. [§§ 22-60.5-304](#) and [22-60.5-309](#)]

State administrative rules for the Educator Licensing Act of 1991 provide specific guidance to school districts with regard to induction programs for principals and

administrators. First, induction programs must assign a mentor to every new school principal and administrator. Such programs must be designed to meet four purposes: (1) orientation; (2) socialization and transition; (3) technical skill development; and (4) continuous formative assessment. Mentors must have experience as a school principal or district administrator and “should be regarded as effective by their peers.” In addition, they must have demonstrated commitment to professional standards, well-developed interpersonal skills, effective oral and written communication, and an awareness of the political, social and practical realities of the context of the inductee. Induction programs must train mentors in orientation to mentoring; development of professional knowledge and skills, cognitive coaching, and writing professional growth and improvement plans. At the inception of the induction period, the mentor and inductee must jointly develop a professional growth plan based on the inductee’s pre-service portfolio, the assessments required for the Initial License, and professional standards. Each inductee must maintain a portfolio of induction activities. Each induction program must include a summative performance evaluation of inductees and specify the role of the mentor, if any, in that evaluation. The district shall recommend an inductee for a Professional License based, in part, on that performance evaluation.

[[1 Colorado Code of Regulations \(C.C.R.\) 301-37: 2260.5-R-14.01 \(2\)\(c\)](#)]

### 3. Program Standards:

**The state should have formal program standards that govern the design and operation of local teacher induction programs.**

The state does not have formal induction program standards, but it has outlined minimum requirements for induction programs as well as some suggested guidelines to support more robust design elements in the administrative rules for the Educator Licensing Act of 1991. State guidelines require that district programs establish:

(1) standards for mentor selection, training and release time; (2) an assessment model to review, evaluate and guide the induction program; (3) a process for the matching of mentors with inductees; (4) the primary role of the mentor as teacher, coach, advocate, support, guide and nurturer of new teachers; and (5) whether mentors will be included in the evaluation of inductees. If mentors are to be involved in such evaluations, programs must state the specific roles and responsibilities of the mentor in evaluations.

Additionally, state guidelines require program activities to encourage professionalism and enhanced teacher performance (via demonstrations of improved instructional practices; improvement of educational experiences for all students; and adapting curriculum and instruction to accommodate populations of diverse students).

[1 C.C.R. 301-37: 2260.5-R-13.01]

### 4. Mentor Selection:

**State policy should require a rigorous mentor selection process.**

State policy requires school districts to establish standards and a process for the selection of mentors. The state provides guidance as to mentor attributes, including that the mentor: (1) agrees to serve in that role; (2) is an experienced professional who models state standards and demonstrates excellence in practice; (3) works well with adults and is sensitive to others' viewpoints; (4) is an active and open learner; and (5) is competent in interpersonal and public relations skills.

[1 C.C.R. 301-37: 2260.5-R-13.01 (1)(c) and (2)(c)]

### 5. Mentor Training:

**State policy should require foundational training and ongoing professional development for mentors.**

State policy requires school districts to establish standards and a process for mentor training. However, the state does not make any specific requirements with regard to the design or content of that training. It also requires local induction programs to provide “ongoing professional

development and training ... for both new teachers and mentors.”

[1 C.C.R. 301-37: 2260.5-R-13.01 (1)(b) and (1)(c)]

### 6. Mentor Assignment and Caseload:

**State policy should address how mentors are assigned to beginning teachers, allow for manageable mentor caseloads, and encourage programs to provide release time for mentors.**

State policy requires school districts to establish a process for “the matching of mentors with inductees.” It encourages, but does not require, induction programs to consider providing release time for both mentors and new teachers.” State program rules also suggest that “effective induction programs should consider” the following program elements related to mentor assignments:

(1) a close match between the teaching assignment of the mentor and inductee; (2) proximity between the two parties; and (3) personal styles not in conflict.

[1 C.C.R. 301-37: 2260.5-R-13.01 (1)(b); (2)(a); and (2)(d)]

### 7. Program Delivery:

**State policy should identify key induction program elements, including a minimum amount of mentor-new teacher contact time, formative assessment of teaching practice, and classroom observation.**

State policy does not require – but does encourage – specific induction program elements. The state encourages local induction programs to engage in collaborative efforts with higher education institutions, to provide release time for both mentors and new teachers, to provide mentor compensation, and to provide sufficient planning time for new teachers. Requirements about classroom observation are not specifically addressed within the state’s policies. However, the state allows local programs to commit to guiding new teachers in “the development of an induction portfolio... to encourage self-reflection and self-evaluation of educational practice ... and to document improved performance related to the [professional teaching] standards.”

State policy specifies the general elements of professional support that programs must provide to new teachers:

(1) information related to school and district policies and procedures; (2) local district goals and local content standards; (3) educator roles and responsibilities; (4) information about the school community; (5) substantive feedback to the inductee about performance; and (6) provisions for the extension of the induction program if deemed necessary by the district.

The state also requires local program site administrators to receive training in the induction process.

[1 C.C.R. 301-37: 2260.5-R-13.01 (1)(c); (1)(d); (2)(a); (2)(b); and (2)(d)]

### 8. Funding:

**The state should provide dedicated funding to support local educator induction programs.**

The state does not provide dedicated funding for local induction programs.

### 9. Educator Accountability:

**The state should require participation in and/or completion of an induction program to advance from an initial to a professional teaching license.**

All teachers who hold an initial or special services license must successfully complete an induction program in order to advance to a professional teaching license. The induction process is based on a growth plan, as determined by the teacher, which incorporates a number of potential sources of support (i.e. mentoring, college coursework, conferences, projects, etc.). Mentors provide input into the growth plan before being submitted to the state to be provided the next level of licensure.

### 10. Program Accountability:

**The state should assess or monitor program quality through accreditation, program evaluation, surveys, site visits, self reports, and other relevant tools and strategies.**

Local school districts are expected to “establish an assessment model to review, evaluate and guide the induction program.” Each induction program is expected to conduct a self-evaluation every five years. The state Department of Education may conduct visits to induction sites and survey participants regarding the effectiveness of the program. The evaluation information is submitted to the state for use in recommending program renewal.

[1 C.C.R. 301-37: 2260.5-R-13.01 (1)(c) and 13.02]

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#### Links:

Colorado Department of Education – Educator Effectiveness – Induction: <http://www.cde.state.co.us/EducatorEffectiveness/Induction.asp>

Colorado Department of Education – Induction and Professional Development: <http://www.cde.state.co.us/index/licproservices.htm>

Colorado State Board of Education – Rules for the Administration of the Educator Licensing Act of 1991: [http://www.cde.state.co.us/cdeboard/download/bdregs\\_301-37.pdf](http://www.cde.state.co.us/cdeboard/download/bdregs_301-37.pdf)

*The Colorado Department of Education has reviewed this state summary.*

*This information is accurate as of April 2011.*

## *Appendix B*

*NTC Literature Review on Teacher Induction and Annotated Bibliography*

## NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>Foundational</i>		
<i>Criteria/Element</i>	<i>Source</i>	<i>Research</i>
<u><i>Program Vision</i></u>	<p style="text-align: center;"><b>COLORADO</b></p> <p style="text-align: center;">NTC Induction Standards</p>	<p>Lai, 2010—This case study of teacher mentors in Hong Kong suggests that key players in the mentoring scheme should attain a shared vision of mentoring and work together to create an integrated curriculum for their learning.</p> <p>Bartell, 2005—This study found that the characteristics of effective induction programs include clarity about the purpose and intended outcomes of the program.</p> <p>Moir &amp; Gless, 2001—Program vision is one of five essential induction components. Quality induction must consciously set and clearly articulate new professional norms and expectations. New teacher programs must have as part of their vision more than retention and survival—also a new image of the successful teacher whose leadership capacity is developed from the moment the teacher enters a classroom.</p>
<u><i>Program Administration</i></u>	<p style="text-align: center;">NTC Induction Standards</p>	<p>Glazerman, et al., 2010—A federally funded randomized controlled trial found that third-year teachers who received two years of comprehensive induction support produced greater student learning gains. Among the components of the induction treatment received by beginning teachers in the treatment group was district-level program coordinators who generally worked in departments of human resources or professional development.</p> <p>Rockoff, 2008—Study found positive impacts on math &amp; reading achievement as a result of a mentoring program that utilized a program director in 11 regions within a large urban district.</p> <p>Britton, et al., 2003—The experience of comprehensive induction programs in five nations suggests that program administration is a necessary element to oversee, coordinate, provide goals, set policy and monitor program performance.</p>

# NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>Foundational (continued)</i>		
Criteria/Element	Source	Research
<u>Program Administration</u>	NTC Induction Standards	<p>Moir &amp; Gless, 2001—Institutional commitment and support is identified as one of five essential induction program elements. Induction efforts need innovative, full-time program administrators who have the time and resources to focus adequate attention on new teachers.</p>
<u>Principal &amp; Site Leader Engagement</u>	<p><b>COLORADO</b> NTC Induction Standards</p>	<p>Glazerman, et al., 2010—A federally funded randomized controlled trial found that third-year teachers who received <u>two</u> years of comprehensive induction support produced greater student learning gains. Among the components of the induction treatment received by beginning teachers in the treatment group was “outreach to district- and school-based administrators to educate them about program goals and to garner their systemic support for the program.”</p> <p>Fantilli &amp; McDougall, 2009—This Canadian study recommends leadership training for school principals “to prepare them to effectively promote the creation of a collaborative school culture and resource model where leaders are at the disposal of new teachers.” Training should include best practices for mentor selection.</p> <p>Villar &amp; Strong, 2007—This study found a positive return on investment from a comprehensive induction program, including from increased beginning teacher effectiveness and reduced beginning teacher attrition. A key element of the induction program studied was communication with school principals about the program parameters, goals and activities.</p> <p>Moir &amp; Gless, 2001—Institutional commitment and support is identified as one of five essential induction program elements. It can be demonstrated by designing programs that ensure adequate time and resources for new teacher learning and mentor development, by establishing policies that protect new teachers during the critical stage of induction, and by making teacher development the centerpiece of educational reform across the district.</p>



NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>Foundational (continued)</i>		
Criteria/Element	Source	Research
<u>Program Assessment, Evaluation &amp; Accountability</u>	COLORADO NTC Induction Standards NTC Policy Criteria	<p>Bickmore &amp; Bickmore, 2010—This study suggests that poor induction program implementation can impede the intended impact of an otherwise well-planned program.</p> <p>Johnson, Goldrick &amp; Lasagna, 2010—This paper suggests that in addition to traditional induction policy elements, states also must attend to broader program infrastructures that communicate program vision, model effective program design, evaluate the efficacy of local models, and support program improvement.</p> <p>Totterdell, et al., 2004—This literature review recommends that induction programs be evaluated over the long term, to capture information on teacher performance, retention and morale of new teachers.</p>

## NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>Structural</i>		
Criteria/Element	Source	Research
<p><u>Mentor Recruitment &amp; Selection</u></p>	<p><b>COLORADO</b> NTC Induction Standards NTC Policy Criteria</p>	<p>Glazerman, et al., June 2010 —A federally-funded randomized controlled trial found that third-year teachers who received two years of comprehensive induction support produced greater student learning gains. Among the components of the induction treatment received by beginning teachers in the treatment group was “carefully selected and trained full-time mentors.” Mentors were identified through a written job posting, the use of an Interview Team, a set of interview questions and a rubric for mentor selection (which called for individuals with a minimum of five years of teaching experience in elementary school, recognition as an exemplary teacher, and expertise in designing and implementing standards-based instruction).</p> <p>Moir, et al., 2010—This book articulates a mentor recruitment strategy that involves all high-level stakeholders and includes a personalized effort to recruit the highest-quality candidates. It describes the following mentor selection criteria: evidence of outstanding teaching practice, strong interpersonal skills, experience with adult learners, at least five years teaching experience, respect of peers, current knowledge of curriculum and professional development, history of advocacy leading to change, and a commitment to lifelong learning.</p> <p>Wechsler, et al. 2010—This evaluation of a state-funded induction pilot program found that induction models with more stringent requirements for mentor selection provide more intense mentoring and a strong focus on instruction, two contributors to positive teacher outcomes.</p> <p>Abrams &amp; Dozier, 2009—This study found a positive impact on beginning teacher retention and classroom teaching as a result of a teacher induction program that included a “competitive selection process” for mentors.</p>

## NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>Structural (continued)</i>		
Criteria/Element	Source	Research
<u>Mentor Recruitment &amp; Selection</u>	<p><b>COLORADO</b></p> <p>NTC Induction Standards</p> <p>NTC Policy Criteria</p>	<p>Fantilli &amp; McDougall, 2009—This Canadian paper suggests that mentor selection and qualifications are important to the provision of quality mentoring to beginning teachers. In addition, mentee involvement in the selection of a mentor may contribute to the overall success of the mentoring relationship.</p> <p>Rockoff, 2008—Study found positive impacts on math &amp; reading achievement of new teachers supported by mentors. Approximately 300 mentors were selected from over 1,600 applicants.</p> <p>Roehrig, et al., 2008—This study found that more successful mentors tended to exhibit instructional practices more consistent with effective teaching, suggesting that evidence of good teaching practice should be a selection criteria for mentors.</p> <p>Kilburg, 2007—This study identified more rigorous mentor selection as a necessity for quality mentoring.</p> <p>Villar &amp; Strong, 2007—This study found a positive return on investment from a comprehensive induction program, as a result of both increased beginning teacher effectiveness and reduced teacher attrition. A key element of the induction program studied was careful selection of experienced teachers as mentors.</p> <p>Moir &amp; Gless, 2001—Quality mentoring is identified as one of five essential induction program elements. Mentor selection criteria should include Selection criteria include: strong interpersonal skills, credibility with peers and administrators, a demonstrated curiosity and eagerness to learn, respect for multiple perspectives, and outstanding instructional practice.</p>

# NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>Structural (continued)</i>		
Criteria/Element	Source	Research
<u>Mentor Recruitment &amp; Selection</u>	<b>COLORADO</b> NTC Induction Standards NTC Policy Criteria	Feiman-Nemser, 1996—When not strategically selected, mentors can serve to perpetuate stagnant educational approaches and undermine teacher education. It is critical to establish clear and objective criteria for differentially encouraging or discouraging continued participation of mentors.
<u>Foundational Mentor Training</u>	<b>COLORADO</b> NTC Policy Criteria	<p>The following studies found positive impacts of induction models/programs that provided foundational mentor training:</p> <ol style="list-style-type: none"> <li>1. Glazerman, et al., 2010—math &amp; reading achievement (10-12 days of initial training during year one and 8-10 days on year two)</li> <li>2. Adams, 2010—math achievement, teacher retention (24 days over 2-year-long mentor assignment)</li> <li>3. Abrams &amp; Dozier, 2009—teacher retention, teaching practice (12 days per year)</li> <li>4. Stanulis &amp; Floden, 2009—teaching practice (6 days annually)</li> <li>5. Rockoff, 2008—math &amp; reading achievement</li> <li>6. Villar &amp; Strong, 2007—positive return on investment, student achievement (beginning teacher effectiveness), teacher retention</li> <li>7. Evertson &amp; Smithey, 2000—teaching practice</li> <li>8. Stallion &amp; Zimpher, 1991—classroom management</li> </ol> <p>Fantilli &amp; McDougall, 2009—This Canadian study recommends multiple days of mentor training that encompasses effective coaching, observation, and mentee feedback strategies.</p>

## NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>Structural (continued)</i>		
Criteria/Element	Source	Research
<u>Foundational Mentor Training</u>	COLORADO NTC Policy Criteria	<p>Athanases &amp; Achinstein, 2003—This research found that new teachers indeed could focus on individual and low-performing students early in their careers. Central to mentors’ strategies in helping new teachers to do this were knowledge of assessment of students, alignment of instruction with standards, and formative assessment of new teachers as adult learners. Such knowledge can be built and conveyed through foundational mentor training.</p> <p>Moir &amp; Gless, 2001—Quality mentoring is identified as one of five essential induction program elements. Supporting new teachers involves learning skills other than those that most classroom teachers possess. The pedagogy of mentoring should include an in-depth understanding of teacher development, professional teaching standards, performance assessment, and student content standards, along with strategies for classroom observation and a variety of coaching techniques.</p>
<u>On-going Mentor Professional Development</u>	COLORADO NTC Program Standards NTC Policy Criteria	<p>Glazerman, et al., 2010—This federally-funded randomized controlled trial found that third-year teachers who received two years of comprehensive induction support produced greater student learning gains. Among the components of the induction treatment received by beginning teachers in the treatment group were mentors who were afforded weekly opportunities to meet together as well as with program staff and district coordinators.</p> <p>Adams, 2010—The Alaska Statewide Mentor Project (ASMP) trains mentors through eight academies, each academy lasting three days and staggered throughout mentors’ two-year assignment. Additionally, two days surrounding each academy are used for building the mentor learning community. In between academies, mentors attend ongoing professional development three hours every two weeks. The study demonstrated a positive impact of the ASMP on teacher retention and student achievement.</p>

## NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>Structural (continued)</i>		
Criteria/Element	Source	Research
<p><u>On-going Mentor Professional Development</u></p>	<p><b>COLORADO</b> NTC Program Standards  NTC Policy Criteria</p>	<p>Moir, et al., 2010—This book articulates the importance of providing ongoing support to mentors through a community of practice, bringing mentors together weekly or biweekly with facilitators who can help structure conversations focused on moving teacher practice forward.</p> <p>Abrams &amp; Dozier, 2009—This study found a positive impact on beginning teacher retention and classroom teaching as a result of an induction program that included foundational mentor training and on-going support. Mentors received 12 days of training per year and participated in weekly professional development forums.</p> <p>Stanulis &amp; Floden, 2009—This study found positive impacts on teaching practice for “intensive mentoring” by mentors who participated in study groups for 6 hours each month along with 6 full days of professional development during the year.</p> <p>Villar &amp; Strong, 2007—This study found a positive return on investment from a comprehensive induction program, including from increased beginning teacher effectiveness and reduced beginning teacher attrition. A key element of the induction program studied was ongoing training for mentors.</p> <p>Moir &amp; Gless, 2001—Quality mentoring is identified as one of five essential program elements. Supporting new teachers involves learning skills other than those that most classroom teachers possess. Mentors should be given regular opportunities to develop their knowledge and skills and to problem-solve issues of practice.</p>

## NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>Structural (continued)</i>		
Criteria/Element	Source	Research
<u>Mentor Roles &amp; Responsibilities</u>	<p style="text-align: center;"><b>COLORADO</b></p> <p>NTC Program Standards</p>	<p>Studies that evaluated induction models/programs that clearly articulated mentor roles and responsibilities and found positive results:</p> <ol style="list-style-type: none"> <li>1. Glazerman, et al., June 2010—math &amp; reading achievement</li> <li>2. Rockoff, 2008—math &amp; reading achievement</li> <li>3. Villar &amp; Strong, 2007—return on investment, beginning teacher effectiveness, teacher retention</li> </ol> <p>Yusko &amp; Feiman-Nemser, 2008—This analysis finds that mentoring can be most educative when mentors engage in assistance and assessment structured by appropriate frameworks and processes, get support from a professional community that upholds professional teaching standards, and receive training and ongoing professional development to carry out their important responsibility.</p> <p>James Rowley in Portner (editor), 2005—A failure to define the role of the mentor compromises their support to new teachers. In particular, a program must define the role of a mentor as an instructional coach with regard to formative and summative assessment of new teacher practice.</p>
<u>Mentor Assignment</u>	<p style="text-align: center;"><b>COLORADO</b></p> <p>NTC Program Standards</p> <p>NTC Policy Criteria</p>	<p>Kaiser &amp; Cross, 2011—Analysis of the 2007-08 Beginning Teacher Longitudinal Study finds that for beginning teachers who were assigned a mentor in 2007-08, 8% were not teaching in 2008-09 and 10% were not teaching in 2009-10. However, for beginning teachers who were not assigned a mentor in 2007-08, 16% were not teaching in 2008-09 and 23% were not teaching in 2009-10.</p>



# NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>Structural (continued)</i>		
Criteria/Element	Source	Research
<u>Mentor Assignment</u>	<p><b>COLORADO</b> NTC Program Standards</p> <p>NTC Policy Criteria</p>	<p>Moir, et al., 2010—This book calls for a three-year rotation for mentors to ensure a current knowledge of classroom practice, the development of a cohort of mentor leaders, the maintenance of some mentor experience within the ranks, and the elevation of mentors into other leadership roles.</p> <p>Rockoff, 2008—The study found that there was a positive impact on teacher retention when mentors had prior experience with and knowledge of a particular school. It also found very little evidence that teacher or student outcomes are improved when a mentor matches a teacher's subject area.</p> <p>Roehrig, et al., 2008—The study suggests that mentor experience is associated with effectiveness as a mentor.</p> <p>Smith, 2007—This study of state induction policies found that requiring beginning teachers and their mentors to be matched by subject, grade, or school does not appear to ensure such a match, although states that have this requirement do have programs that are more effective at reducing turnover.</p> <p>Villar &amp; Strong, 2007—This study found a positive return on investment from a comprehensive induction program, including from increased beginning teacher effectiveness and reduced beginning teacher attrition. A key element of the induction program studied was experienced teachers released from all classroom-teaching duties to work full-time as mentors for three to four years.</p>

## NTC LITERATURE REVIEW ON TEACHER INDUCTION

<b>Structural (continued)</b>		
<b>Criteria/Element</b>	<b>Source</b>	<b>Research</b>
<u><i>Mentor Assignment</i></u>	<p><b>COLORADO</b></p> <p>NTC Program Standards</p> <p>NTC Policy Criteria</p>	<p>Kilburg &amp; Hancock, 2006—When school districts limit the number of mentor “matching factors,” it may negatively impact both the mentoring relationship and the mentoring process. Through a literature review, this study identifies several important matching factors: work in the same building; similar interests and philosophy; willingness to work with the new teacher; strong interpersonal skills; same grade level and subject; experience; and expertise in a variety of areas.</p> <p>Smith &amp; Ingersoll, 2004; Ingersoll &amp; Smith, 2004—These studies found that beginning teachers who were provided with mentors from the same subject field and who participated in collective induction activities, such as planning and collaboration with other teachers, were less likely to move to other schools and less likely to leave the teaching occupation after their first year of teaching.</p> <p>Totterdell, et al., 2004—This British literature review on induction highlights the importance of mentor-mentee matches in the area of special education. It notes that this is preferable both from the perspective of new special education teachers and from the perspective of students with special educational needs.</p>
<u><i>Mentor Caseload</i></u>	<p>NTC Program Standards</p> <p>NTC Policy Criteria</p>	<p>Glazerman, et al., 2010—A federally funded randomized controlled trial found that third-year teachers who received two years of comprehensive induction support produced greater student learning gains. Among the components of the induction treatment received by beginning teachers in the treatment group was support from a full-time mentor with a typical caseload of 12 beginning teachers (although caseloads ranged from 8 to 14 teachers over the course of the year).</p>

# NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>Structural (continued)</i>		
Criteria/Element	Source	Research
<u>Mentor Caseload</u>	<p>NTC Program Standards</p> <p>NTC Policy Criteria</p>	<p>Adams, 2010—This evaluation of the Alaska Statewide Mentor Project (ASMP) found a positive impact on teacher retention and student achievement. Full-time mentors have a caseload of 15 new teachers each.</p> <p>Moir, et. al., 2010—This book establishes a maximum full release mentor-new teacher ratio of 1:15 (where the mentor works in no more than four schools), with a mentor caseload of no more than 7-10 new teachers in the hardest-to-staff schools.</p> <p>Rockoff, 2008—Study found a positive impact on math (especially) and reading achievement of first-year teachers supported by full-time mentors with a targeted caseload of no greater than 1:17.</p> <p>Villar &amp; Strong, 2007—This study found a positive return on investment from a comprehensive induction program, including from increased beginning teacher effectiveness and reduced beginning teacher attrition. A key element of the induction program studied was mentors released from the classroom and given a caseload of 15 new teachers.</p>

## NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>Structural (continued)</i>		
Criteria/Element	Source	Research
<u>Mentor Release Time</u>	<p style="text-align: center;"><b>COLORADO</b> (encouraged)</p> <p style="text-align: center;">NTC Policy Criteria</p>	<p>Fletcher &amp; Strong, 2009—This study looked specifically at the impact of full-release mentors versus site-based mentors also serving as classroom teachers. Students taught by new teachers supported by full-release mentors showed greater achievement gains in English language arts and mathematics.</p> <p>Other studies that evaluated induction models/programs that utilized full-time teacher mentors and found positive results:</p> <ol style="list-style-type: none"> <li>1. Glazerman, et al., June 2010—math &amp; reading achievement</li> <li>2. Adams, 2010—math achievement, teacher retention</li> <li>3. Abrams &amp; Dozier, 2009—teacher retention, teaching practice</li> <li>4. Johnson, 2009—teaching practice, student engagement</li> <li>5. Davis &amp; Higdon, 2008—teaching practice</li> <li>6. Fletcher, Strong &amp; Villar, 2008—reading achievement</li> <li>7. Rockoff, 2008—math &amp; reading achievement</li> <li>8. Villar &amp; Strong, 2007—return on investment, beginning teacher effectiveness, teacher retention</li> </ol> <p>Stanulis &amp; Floden, 2008—This study found positive impacts on teaching practice for “intensive mentoring” that involved 5 classroom teachers released 1 day each week to mentor 3 beginning teachers each.</p> <p>Mitchell &amp; Scott-Hendrick, 2007—This evaluation of California’s state induction program recommends the use of full-time teacher mentors, released from all classroom teacher duties. It calls the creation of the time needed by support providers to do their support work perhaps the most important induction program element.</p>

## NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>Structural (continued)</i>		
Criteria/Element	Source	Research
<u>Mentor Release Time</u>	<p><b>COLORADO</b> (encouraged)</p> <p>NTC Policy Criteria</p>	<p>Moir, et al., 2010—This book concludes that a full-release mentor model is preferable because it best allows for sanctioned time for mentoring. It cites research that finds that full-release mentors may be more adept than partially-released mentors at providing more valued support and more greatly impacting student learning.</p>
<u>Mentor-Mentee Contact Time</u>	<p>NTC Policy Criteria</p>	<p>Glazerman, et al., June 2010—A federally funded randomized controlled trial found that third-year teachers who received two years of comprehensive induction support produced greater student learning gains. Among the components of the induction treatment received by beginning teachers in the treatment group was “weekly meetings with mentors.” Programs expected mentors to allocate approximately two hours of contact time each week with every beginning teacher in their caseload. Based on new teacher surveys, that mentor support averaged 85 minutes per week over both years.</p> <p>Adams, 2010—This evaluation of the Alaska Statewide Mentor Project (ASMP) found a positive impact on teacher retention and student achievement. Each ASMP mentor communicates weekly with all new teachers through email, phone, or Skype and visits them face-to-face once each month for about half a day. This is the equivalent face-to-face time of one hour a week.</p> <p>Moir, et al., 2010—This book establishes “between 1.5 and 2.5 hours per week” as the necessary amount of regular mentor-mentee contact time.</p> <p>Abrams &amp; Dozier, 2009—This study found a positive impact on teacher retention and classroom teaching as a result of a teacher induction program that provided at least 1 hour per week of mentor contact time for each beginning teacher.</p>

## NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>Structural (continued)</i>		
Criteria/Element	Source	Research
<p><u>Mentor-Mentee Contact Time</u></p>	<p><b>COLORADO</b> (encouraged)</p> <p>NTC Policy Criteria</p>	<p>Fantilli &amp; McDougall, 2009—This Canadian study of beginning teachers revealed that the need for increased time to work with mentors was one of the greatest needs. It recommends “increased release time from the classroom to facilitate mentor-mentee collaboration and develop the essential knowledge and skills in key areas such as planning, programming, assessment, special education, and reporting ... in order that leadership avenues can address individualized needs.”</p> <p>Johnson, 2009—This study found a positive impact on beginning teachers’ use of differentiated instruction strategies and the level of their students’ classroom engagement as a result of comprehensive induction that included weekly meetings with mentors.</p> <p>Stanulis &amp; Floden, 2009—This study found positive impacts on teaching practice for “intensive mentoring” that included weekly interactions between mentors and beginning teachers.</p> <p>Davis &amp; Higdon, 2008—This mixed-method study examined the effects of a school/university induction partnership and found positive results on the teaching practices of new teachers who received weekly assistance for full-release mentors.</p> <p>Rockoff, 2008—When new teachers spent more hours with their mentor (at least one hour per week), there were gains for students in both reading and especially in math.</p> <p>Villar &amp; Strong, 2007—This study found a positive return on investment from a comprehensive induction program, including from increased beginning teacher effectiveness and reduced beginning teacher attrition. A key element of the induction program studied was weekly meetings of mentors and beginning teachers for at least two hours.</p>

NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>Structural (continued)</i>		
Criteria/Element	Source	Research
<u>Mentee-Contact Time</u>	COLORADO (encouraged)  NTC Policy Criteria	Kilburg & Hancock, 2006—This study identified lack of time as the single most important factor that caused repeated problems in mentoring relationships.  Ingersoll & Smith, 2004; Smith & Ingersoll, 2004—Teachers were less likely to leave the profession after one year if they had common planning time with other teachers in the same subject and had regularly scheduled collaboration with other teachers.
<u>Mentor Assessment</u>	NTC Program Standards	Moir, et al., 2010—This book calls for induction program leaders to use rubrics, goal-setting protocols, and survey data to ensure that mentors are developing and growing in their professional roles.  Wechsler, et al. 2010—This evaluation of a state-funded induction pilot programs found that programs that hold mentors accountable for their mentoring provide more intense mentoring and a stronger focus on instruction -- two contributors to positive teacher outcomes.  Feiman-Nemser, 1996—This study found that, when not strategically selected, mentors can serve to perpetuate stagnant educational approaches, undermine teacher education, and stifle reform efforts. It highlights the importance of evaluating mentor effectiveness.
<u>Formative Assessment System</u>	NTC Policy Criteria  NTC Program Standards	Glazerman, et al., 2010—A federally funded randomized controlled trial found that third-year teachers who received two years of comprehensive induction support produced greater student learning gains. Among the components of the induction treatment received by beginning teachers in the treatment group was “formative assessment tools that permit evaluation of practice on an ongoing basis and require observations and constructive feedback.”



## NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>Structural (continued)</i>		
Criteria/Element	Source	Research
<p><u>Formative Assessment System</u></p>	<p>NTC Policy Criteria NTC Program Standards</p>	<p>Adams, 2010—This evaluation of the Alaska Statewide Mentor Project, which utilizes a formative assessment system for new teachers, found that mentored new teachers were retained at higher rates and that their students exhibited achievement in mathematics on par with students taught by veteran peers.</p> <p>Abrams &amp; Dozier, 2009—This study found a positive impact on beginning teacher retention and classroom teaching as a result of a teacher induction program that utilized a formative assessment system that supported and evaluated beginning teacher practice.</p> <p>Villar &amp; Strong, 2007—This study found a positive return on investment from a comprehensive induction program, including from increased beginning teacher effectiveness and reduced beginning teacher attrition. A key element of the induction program studied was a Formative Assessment System—aligned with the beginning teacher’s evaluation process and district calendar—to guide the ongoing work of the new teacher and mentor and informed by content standards.</p> <p>Athanases &amp; Achinstein, 2003—This research found formative assessment to be a key mentoring strategy in helping new teachers to focus on and meet the needs of focus on individual and low-performing students early in their careers.</p>
<p><u>Beginning Teacher Professional Development and Learning Communities</u></p>	<p>NTC Program Standards</p>	<p>Glazerman, et al., 2010—A federally funded randomized controlled trial found that third-year teachers who received two years of comprehensive induction support produced greater student learning gains. Among the components of the induction treatment received by beginning teachers in the treatment group was “professional development.” Beginning teachers participated in monthly, two-hour professional development sessions.</p>

# NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>Structural (continued)</i>		
Criteria/Element	Source	Research
<p><u>Beginning Teacher Professional Development and Learning Communities</u></p>	<p>NTC Program Standards</p>	<p>Stanulis &amp; Floden, 2009—This study found positive impacts on teaching practice for “intensive mentoring” that includes monthly seminars for beginning teachers facilitated by their mentors that provided a time for beginning teachers to connect with one another and for continued learning.</p> <p>Rockoff, 2008—This study found evidence indicating that new teachers who received other types of support (including professional development) were more likely to remain teaching in the district and also to return to the same school.</p> <p>Villar &amp; Strong, 2007—This study found a positive return on investment from a comprehensive induction program, including from increased beginning teacher effectiveness and reduced beginning teacher attrition. A key element of the induction program studied was monthly seminars are designed to build a support network and ongoing professional dialogue among beginning teachers and all mentors.</p> <p>Kapadia, Coca &amp; Easton, 2007—This Chicago-based research investigated the impact of participation in induction on new teachers and their intent to remain teaching. Participation in a network of new teachers was one of three supports that had the greatest influence on new elementary and high school teachers plans to remain teaching in the same school.</p> <p>Ingersoll &amp; Smith, 2004; Smith &amp; Ingersoll, 2004—Teachers were less likely to leave teaching after 1 year if they had the opportunity to collaborate with other teachers and participate in an external network of teachers.</p>

## NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>Structural (continued)</i>		
Criteria/Element	Source	Research
<p><u>Beginning Teacher Professional Development and Learning Communities</u></p>	<p>NTC Program Standards</p>	<p>Moir &amp; Gless, 2001—Classroom-based teacher learning is identified as one of five essential induction program elements. Well-balanced programs of new teacher support also provide opportunities for novices to come together with other beginning teachers to learn from each other and to discuss issues and concerns with those having similar experiences.</p>
<p><u>Classroom Observations</u></p>	<p>NTC Program Standards NTC Policy Criteria</p>	<p>Glazerman, et al., 2010—A federally funded randomized controlled trial found that third-year teachers who received two years of comprehensive induction support produced greater student learning gains. Among the components of the induction treatment received by beginning teachers in the treatment group was “a focus on instruction, with opportunities for novice teachers to observe experienced teachers” once or twice per year, in addition to frequent observations of the new teacher’s classroom by the mentor.</p> <p>Abrams &amp; Dozier, 2009—This study found a positive impact on beginning teacher retention and classroom teaching as a result of a teacher induction program that provided more intensive new teacher support, including more frequent observations of the beginning teacher’s classroom and post-mortem meetings.</p> <p>Villar &amp; Strong, 2007—This study found a positive return on investment from a comprehensive induction program, including from increased beginning teacher effectiveness and reduced beginning teacher attrition. A key element of the induction program studied was observation of the new teacher’s classroom by the mentor, at least twice per year, to “formally observe new teachers’ planning, teaching, assessing, and adjusting a lesson of the teachers’ choice.” In addition, the program provided release time for new teachers to observe veterans.</p>

## NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>Instructional</i>		
Criteria/Element	Source	Research
<p><u>Focus on Instructional Practice</u></p>	<p><b>COLORADO</b> NTC Program Standards</p>	<p>Glazerman, et al., 2010—A federally funded randomized controlled trial found that third-year teachers who received two years of comprehensive induction support produced greater student learning gains. Among the components of the induction treatment received by beginning teachers in the treatment group was “a focus on instruction.”</p> <p>Wechsler, et al., 2010—This evaluation of a state-funded induction pilot program found that teachers whose induction focused strongly on instruction had higher levels of teacher efficacy. It also found that programs that have more control over their mentors—more stringent requirements for mentor selection, more training and ongoing support for mentors, and greater mentor accountability—provide more intense mentoring and a stronger focus on instruction, two contributors to positive teacher outcomes.</p> <p>Yusko &amp; Feiman-Nemser, 2008—This analysis finds that mentoring can be most educative when mentors engage in assistance and assessment structured by appropriate frameworks and processes, get support from a professional community that upholds professional teaching standards, and receive training and ongoing professional development to carry out their important responsibility.</p> <p>Moir &amp; Gless, 2001—Professional standards are identified as one of five essential induction program components. They should be used then to guide new teacher learning and growth in meaningful ways, by helping these novices: set clear, significant, and achievable goals; reflect upon and articulate successes and challenges; identify effective practices in their own classrooms and others’ classrooms; guide new learning and next steps; and recognize the complexity of good teaching and the need for career-long professional development. Furthermore, in the process of providing support based on the assessment of a beginning teacher’s practice, the mentor also models for the novice the importance of designing classroom instruction based on assessed student needs.</p>

NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>Instructional (continued)</i>		
Criteria/Element	Source	Research
<u>Focus on Equity and Universal Access</u>	COLORADO NTC Program Standards	<p>Achinstein &amp; Athanases, 2005—This study identifies a complex mentor knowledge base for focusing novice teachers on equity. On-going mentor development is necessary to focus new teachers on the needs of diverse learners. Mentor participation in ongoing professional development, collaborative inquiry, and a community of practice may be helpful in this regard.</p> <p>Moir &amp; Gless, 2001—This paper says that it is essential that local induction programs ensure that that image of quality teaching also reflects the complexities of teaching in a diverse society. Culturally and linguistically responsive pedagogy must be at the heart of every induction program, and new teachers must be constantly supported in examining and responding to the unique needs of their students.</p>

## NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>State Policy Requirements and Funding</i>		
Criteria/Element	Source	Research
<p><u>State Induction Mandate</u></p>	<p><b>COLORADO</b> NTC Policy Criteria</p>	<p>Johnson, Goldrick &amp; Lasgana, 2010—This paper suggests that traditional policy elements (induction mandate, funding, program standards) are critical but insufficient to ensure that the developmental and instructional needs of new teachers are fully met. States also must attend to broader program infrastructures that communicate program vision, model effective program design, evaluate the efficacy of local models, and support program improvement.</p> <p>Hirsch, et al., 2009—This analysis of state mentoring policies for beginning special education teachers concludes that by requiring mentoring, setting program standards, providing resources, requiring and perhaps providing mentor training and professional development for all teachers, and mandating program evaluation, state policy can significantly shape the form and quality of mentoring.</p> <p>Polikoff, McGraner &amp; Desimone, 2009—This paper finds that the legal authority of state policy may play an important role in ensuring the provision of high-quality induction.</p> <p>Carver &amp; Feiman-Nemser, 2008—This article suggests that public policies mandating mentor support for every beginning teacher are helpful but not sufficient. Policy should also define the nature and duration of mentor support, ensure dedicated time for mentors to work with beginning teachers, and provide resources to support program development.</p> <p>Smith, 2007—This study of state induction policies found that beginning teachers were far more likely to be mentored in states that require districts to have induction programs for beginning teachers.</p>

NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>State Policy Requirements and Funding (continued)</i>		
Criteria/Element	Source	Research
<i>State Funding</i>	NTC Policy Criteria	<p>Bartlett &amp; Johnson, 2010—This three-state study finds that unfunded state policy is not a solution to the disproportionate number of new teachers that low-income students experience when their schools are more likely to struggle with inadequate funding for induction programs.</p> <p>Johnson, Goldrick &amp; Lasgana, 2010—This paper suggests that traditional policy elements (induction mandate, funding, program standards) are critical, but insufficient, to ensure that the needs of new teachers are fully met. States also must attend to broader program infrastructures that communicate program vision, model effective program design, evaluate the efficacy of local models, and support program improvement.</p> <p>Hirsch, et al., 2009—This analysis of state mentoring policies for beginning special education teachers suggests that policymakers take into account the fact that districts serving high-need populations may require more funding for induction. It also notes that when states do fund induction, the amount given is often insufficient for effective program implementation.</p> <p>Carver &amp; Feiman-Nemser, 2008—This article suggests that public policies mandating mentor support for every beginning teacher are helpful but not sufficient. Policy also should provide resources to support induction program development.</p> <p>Mitchell &amp; Scott-Hendrick, 2007—This evaluation of California’s induction program finds that “resources do seem to matter” in relation to the participant experience—“programs that record greater expenditures also tend to report higher participant satisfaction.”</p>



## NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>State Policy Requirements and Funding (continued)</i>		
Criteria/Element	Source	Research
<u>State Funding</u>	NTC Policy Criteria	<p>Smith, 2007—State-level funding had a statistically significant relationship with lowering the odds of having an in-field versus out-of-field mentor. It may enable school districts to hire full-time mentors for a relatively large group of new teachers, providing the freedom to work with beginning teachers at any point during the instructional day.</p> <p>Totterdell, et al., 2004—This literature review of teacher induction research suggests that, based on the available evidence, policymakers should consider prioritizing resources for new teachers who disproportionately work in schools that serve disadvantaged and low-income students.</p>
<u>Program Duration</u>	NTC Policy Criteria NTC Induction Model	<p>Glazerman, et al., June 2010—This randomized controlled trial found that third-year teachers who received two years of comprehensive induction support produced greater student learning gains compared to colleagues served by prevailing induction programs. For teachers who received only one year of comprehensive induction, there was no impact on student achievement.</p> <p>Moir, et al., 2010—Multi-year induction and mentoring is required to allow new teachers to reach “optimal effectiveness.” Research evidence suggests that most deep learning about instruction actually occurs in years two and three of teaching.</p> <p>Fletcher, Strong &amp; Villar, 2008—This study found that classes taught by teachers who had the services of a full-release mentor over two years showed higher achievement gains than classes of teachers in the other groups, suggesting that mentoring can have an effect on student achievement if mentors have concentrated contact time over two years.</p>

NTC LITERATURE REVIEW ON TEACHER INDUCTION

<i>State Policy Requirements and Funding (continued)</i>		
<b>Criteria/Element</b>	<b>Source</b>	<b>Research</b>
<u>Program Duration</u>	NTC Policy Criteria NTC Induction Model	Villar & Strong, 2007—This study found a positive return on investment from a comprehensive induction program, including from increased beginning teacher effectiveness and reduced beginning teacher attrition. A key element of the induction program studied was comprehensive support during a beginning teacher’s first two years.
<u>Induction Program Standards</u>	NTC Policy Criteria NTC Program Standards	Adams, 2010—This evaluation of the Alaska Statewide Mentor Project, which utilizes induction program standards, found that mentored new teachers were retained at higher rates and that their students exhibited achievement in mathematics on par with students taught by veteran peers.  Fletcher, Strong & Villar, 2008—This study suggests that when mentors have substantial preparation and when the mentoring is instructional and standards based, beginning teachers can have a significant impact on student achievement.

## **Annotated Bibliography**

**Abrams, L. and Dozier, T. (2009). *The Impact of a Full-Release Mentoring Model on the Practice and Retention of Beginning Teachers*. (Paper prepared for the American Education Research Association annual conference.) Virginia Commonwealth University: Richmond, VA.**

A study was conducted in 22 schools in Virginia piloting a two-year teacher induction program that allowed mentor teachers to be fully released from their classroom duties. A survey of pilot-school teachers and comparison-school teachers showed that pilot-school teachers believed their success stemmed from the support from their mentor. The study found that the intensive mentoring model provided more frequent contact between mentors and new teachers, more intensive mentoring supports (including classroom observation) to new teachers, and greater impact on classroom teaching practices. After initial implementation, the attrition rate for first-year teachers decreased from 21.1 percent to 5.6 percent.

**Achinstein, B. and Athanases, S. (2005). "Focusing new teachers on diversity and equity: Toward a knowledge base for mentors." *Teaching & Teacher Education*, 21(7), 843-862.**

Drawing on the expertise of leading mentor practitioners and based on a case study, this article builds a framework for what mentors need to know and be able to do to focus new teachers on equity. It identifies a complex mentor knowledge base for focusing novice teachers on equity. Programs that recruit expert teachers and do not support their mentor development in the area of pedagogical learner knowledge for students and adults will leave mentors ill-equipped to focus novices on diverse learners' needs. The mentor leaders in this study were engaged in ongoing professional development and collaborative inquiry. Development included an explicit equity focus, with expert outsiders, readings, resources, examination and critique of practice, and construction of new knowledge as part of the learning enterprise. These mentors met in a community of practice to examine and critique their mentoring work. Also critical are opportunities to learn from other mentors through dialogue, observations, analysis of videos of practice, as well as opportunities to reflect on their own assumptions about equity and the struggles of focusing novices on equity.

**Adams, B. L. (April 12, 2010). *Connecting Mentoring to Student Achievement in Alaska: Results and Policy Implications*. (Presented at the American Educational Research Association annual conference.) University of Alaska: Fairbanks, AK.**

This study documents the impact of the Alaska Statewide Mentor Project (ASMP). New teachers in Alaska are being retained at an average rate of 79 percent compared to a historic rate of 68 percent. First-year teachers in rural settings are being retained at a rate of 83 percent, compared with an average 67 percent retention rate for new teachers who are not in the program. In urban settings, new teachers are being retained at a three-year average rate of 94 percent; those who are not in the program are being retained at an average rate of 83 percent. Findings from the study show that the standardized scores of students taught by mentored new teachers were not at the same level as the standardized scores of students taught by veteran teachers, however they were much closer than expected in reading, writing and science. In the case of mathematics, students of mentored new teachers performed at the same level as students of veteran teachers.

**Athanasos, S. Z. and Achinstein, B. (2003). "Focusing new teachers on individual and low performing students: the centrality of formative assessment in the mentor's repertoire of practice." *Teachers College Record*, 105(8), 1486-1520.**

This research found that new teachers could focus on individual and low-performing students early in their careers. Central to mentors' strategies in helping new teachers to do this were knowledge of assessment of students, alignment of instruction with standards, and formative assessment of new teachers as adult learners.

**Bartell, C. A. (2005). *Cultivating high quality teaching through induction and mentoring*. Corwin Press: Thousand Oaks, CA.**

This book identifies critical elements in shaping induction policies that lead to teacher retention and improved student achievement. This includes clarity and purpose about programmatic intent, attention to leadership and administration of the program, and the provision of scheduled, structured time for experienced and beginning teachers to work together.

**Bartlett, L. and Johnson, L. (November 2010). "The Evolution of New Teacher Induction Policy: Support, Specificity and Autonomy." *Educational Policy*, 24(6), 847-871.**

This article analyzes the findings from a three-state study of teacher induction policy. Based on interviews with state-level and urban district respondents and a review of relevant documents, this article explores the evolution of state-level induction policy and finds that states need to strike a balance between specificity and autonomy in crafting policy that supports effective and equitable induction policy.

**Bickmore, D.L. and Bickmore, S.T. (2010). "A multifaceted approach to teacher induction." *Teaching and Teacher Education*, 26(4), 1006-1014.**

In this study, two middle school induction programs were looked at to determine the effectiveness of the various components of the programs. The solid implementation of the programs allowed the focus to be on the participants' perceptions of effectiveness which the researchers identify as "systematic processes embedded in a healthy school climate that meets new teachers' personal and professional needs." They also found that the multi-faceted programs contributed to the positive perceptions of the participants. The researchers suggest that future studies on induction focus on how the program is implemented, because an induction program can be well planned but not be effective due to poor implementation.

**Britton, E., et. al. (2003). *Comprehensive teacher induction: Systems for early career learning*. Kluwer Academic Publishers: Dordrecht, Netherlands.**

Based on a three-year study of teacher induction programs in five nations, this book describes how comprehensive induction extends beyond the first year of teaching, goes beyond survival to promote learning about teaching, and incorporates multiple sources of support.

**Carver, C. and Feiman-Nemser, S. (2008). "Using Policy to Improve Teacher Induction: Critical Elements and Missing Pieces." *Education Policy* 23(2): 295-328.**

This article suggests that public policies mandating mentor support for every beginning teacher are helpful but not sufficient. It suggests the need for induction policy to make new teacher support a priority by ensuring time for mentors and new teachers to work together, to specify the nature and duration of support received, and to provide financial resources to support program development and implementation.

**Davis, B. and Higdon, K. (Spring 2008). "The effects of mentoring/induction support on beginning teachers' practices in early elementary classrooms (K-3)." *Journal of Research in Childhood Education*, 22(3), 261.**

This mixed-method study examined the effects of a school/university induction partnership on the instructional practices of two groups of beginning teachers in early elementary classrooms. Additionally, it investigated the types of support provided to beginning teachers and determined their retention rates after one year in the profession. An analysis of the quantitative data revealed greater growth in classroom practices for the program participants.

**Evertson, C. M. and Smithey, M. W. (2000). "Mentoring effects on protégés' classroom practice: An experimental field study." *Journal of Educational Research*, 93(5), 294-303.**

This study found that new teachers supported by mentors who received training are more likely to make changes in instructional practice. The study compared a formal

mentoring program with informal mentoring in a quasi-experimental design over the first half of a school year. The training provided to some of the mentors seemed to help them systematically focus on practices such as management, planning, and problem solving.

**Fantilli, R. and McDougall, D. (August 2009). "A study of novice teachers: Challenges and supports in the first years." *Teaching and Teacher Education*, 25(6), 814-825.**

This paper summarizes findings from a survey and case study of new teachers in Ontario, Canada. It investigated the issue of new teacher attrition specifically. Major findings include teachers reporting that some of their challenges could have been resolved if there had been more opportunities for professional development targeted for beginning teachers in addition to more attention to mentor selection and qualifications. The study makes a series of recommendations, including foundational training for school principals in mentoring, multiple days of mentor training, and more time for mentor-mentee interactions.

**Feiman-Nemser, S. (1996). *Teacher mentoring: A critical review*. ERIC Digests. U.S. Department of Education, ERIC Clearinghouse on Teaching and Teacher Education: Washington, DC.**

This federal research review looks at teacher mentoring. Among its findings is the importance of strategically selecting mentors to avoid the perpetuation of stagnant educational approaches. In addition, this review highlights the importance of evaluating mentor effectiveness and establishing clear and objective criteria for differentially encouraging or discouraging continued participation of mentors.

**Fletcher, S. and Strong, M. (2009). "Full-Release and Site-Based Mentoring of New Elementary Grade Teachers: An Analysis of Changes in Student Achievement." *The New Educator*, 5, 329-341.**

This study looked at differences in outcomes between two induction models implemented in a large urban district: (1) fully released new teacher "developers" (the district's term for mentors) and (2) site-based developers having full-time classroom duties. It found that students whose teachers received support from full-release mentors showed stronger gains in achievement than did students associated with site-based mentors. Specifically, achievement gains for fourth-grade and fifth-grade students in English language arts and mathematics were higher for beginning teachers supported by full-release mentors.

**Fletcher, S., Strong, M. and 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.**

This study evaluated three models of teacher induction in different California school districts. At one site, mentors worked full time for two years with a caseload of 15 new teachers. In the other two districts, mentors worked full time for the first year, but in the

second year either caseloads were increased to 35 or the teachers received the services of an on-site mentor with no release time. Using regression analysis on the class-level value-added test score data, the authors found that classes taught by teachers who had the services of a full-release mentor over two years showed higher reading test-score gains than classes of teachers in the other groups, suggesting that mentoring can have an effect on student achievement if mentors are provided concentrated contact time with beginning teachers over two years.

**Glazerman, S., et. al. (June 2010). *Impacts of Comprehensive Teacher Induction: Final Results from a Randomized Controlled Study*. U.S. Department of Education, Institute of Education Sciences: Washington, DC.**

This federally-funded randomized controlled trial found that third-year teachers who received two years of comprehensive induction support produced greater student learning gains—the equivalent of a student moving from the 50th to the 58th percentile in math achievement and from the 50th to 54th percentile in reading—compared to colleagues served by prevailing induction programs. For teachers who received only one year of comprehensive induction, there was no impact on student achievement.

**Ingersoll, R. and Smith, T. (2004). “Do teacher induction and mentoring matter?” *NASSP Bulletin*, 88(638), 28-40.**

The study shows that as more induction components are added to the new teacher’s induction experience, the less likely they are to leave the field after one year of teaching. Teachers that received no induction had a 40-percent probability of leaving the field after 1 year, teachers that received 3 induction supports had a 28-percent probability of leaving the field after 1 year, teachers that received 6 induction supports had a 24-percent probability of leaving the field after 1 year, and teachers that received 8 induction supports had an 18-percent probability of leaving the field after 1 year. Beginning teachers with mentors from the same field were less likely to leave after their first year in addition to having the ability to collaborate with other beginning teachers.

**Ingersoll, R. and Strong, M. (June 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.**

This literature review examines 15 empirical studies on induction for beginning teachers. The studies were focused on three sets of outcomes: (1) teacher commitment and retention, (2) teacher classroom instructional practices, and (3) student achievement. For the studies on teacher commitment and retention, teachers participating in induction had higher job satisfaction, commitment or retention. For the studies on teacher classroom instructional practices, teachers participating in induction performed various teaching practices better. For the studies on student achievement, the majority showed that students of beginning teachers in an induction program had higher scores on achievement tests.



**Johnson, L. (January 2009). *Comprehensive Induction or Add-on Induction? Impact on Teacher Practice and Student Engagement (Research Brief)*. New Teacher Center, University of California, Santa Cruz: Santa Cruz, CA.**

This research compared the impact of beginning teachers on student engagement. Research findings showed that the students of beginning teachers who participated in a comprehensive induction program had statistically significant increases in their engagement in class, while the students of new teachers who received “add on” induction exhibited decreases in student engagement. The study also found that beginning teachers who received comprehensive induction were more likely to use differentiated instruction strategies.

**Johnson, L., Goldrick, L. and Lasagna, M. (November 2010.) *New Teacher Excellence: The Impact of State Policy on Induction Program Implementation*. New Teacher Center: Santa Cruz, CA.**

This paper suggests that traditional policy elements (induction mandate, funding, program standards) are critical but insufficient to ensure that the developmental and instructional needs of new teachers are fully met. In addition to these components, states need to attend to broader program infrastructures that communicate program vision, model effective program design, evaluate the efficacy of local models, and support program improvement particularly for struggling programs and during periods of scale up.

**Kaiser, A. and Cross, F. (2011). *Beginning Teacher Attrition and Mobility: Results From the First Through Third Waves of the 2007-08 Beginning Teacher Longitudinal Study*. National Center for Education Statistics, Institute of Education Sciences: Washington, DC.**

For beginning teachers who were assigned a mentor in 2007-08, 8 percent were not teaching in 2008-09 and 10 percent were not teaching in 2009-10. However, beginning teachers who were not assigned a mentor in 2007-08, 16 percent were not teaching in 2008-09 and 23 percent were not teaching in 2009-10.

**Kapadia, K., Coca, V. and Easton, J.Q. (2007). *Keeping new teachers: A first look at the influences of induction in the Chicago Public Schools. Research Report*. Consortium on Chicago School Research, University of Chicago: Chicago, IL.**

This research report evaluates the effects of induction on the quality of new teachers’ experience, whether they plan on staying in the same school, and whether they plan to continue to teach. The findings show that intensive contextual induction can help beginning teachers have positive early teaching experiences that encourage them to stay in the profession. New elementary teachers who received intensive levels of induction are twice as likely to report a good experience than teachers who received weak levels of induction. New high school teachers who received intensive levels of induction are nearly four times as likely to report a positive experience.

**Kilburg, G. (2007). "Three mentoring team relationships and obstacles encountered: A school-based case study." *Mentoring & Tutoring: Partnership in Learning*, 15(3), 293-308.**

This case study is a continuation of research that investigated 149 mentoring teams in four school districts over two years. During this second phase of the research project, three teams were selected from the first phase of the project to represent mentoring problems including; institutional barriers, time, lack of emotional support, and poor interpersonal skills. The results show that: (1) there should be a more rigorous mentor selection process; (2) more attention needs to be paid to the use of administrators' and mentoring coordinators' time; and (3) more attention needs to be paid to what the role of the principal is in the mentoring process.

**Kilburg, G. and Hancock, T. (2006). "Addressing sources of collateral damage in four mentoring programs." *Teachers College Record*, 108(7), 1321-1338.**

This article examines the types of recurring problems that can inhibit mentoring relationships and intervention strategies to remedy those problems. The study examines 149 mentoring teams in four school districts over a two-year period. Results indicate the need for continual assessment of mentoring programs and mentoring team relationships, financial commitment from the school district, a rigorous mentor selection process, and providing in-service and workshop opportunities for problem solving. Data from this study indicated that the single most important factor that caused repeated problems for mentoring teams was lack of time. A majority of the mentoring teams somehow had to gain additional time for mentoring—time that was typically allocated for teaching, planning lessons, meeting with parents, and working with students.

**Lai, E. (2010). "Getting in step to improve the quality of in-service teacher learning through mentoring." *Professional Development in Education*, 36(3), 443-469.**

This study out of Hong Kong explored the views of mentors, mentored in-service teachers and university teachers with regard to mentoring. The researchers interviewed the individuals around a few themes including: mentor selection and preparation, mentor roles and responsibilities, mentor-mentee relationships, mentoring program, and school-university relationships. The study shows that professional development for the participating mentors was limited and that because in-service teachers are learners, more teaching-practice related mentoring is needed. To strengthen in-service teacher learning, the study recommends that key players in the mentoring program should attain a shared vision and work together to create an integrated curriculum for the learning of new teachers.

**Lind, P. (2007). *Learning to Teach: A Literature Review of Induction Theory and Practice*. New Zealand Teachers Council: Wellington, New Zealand.**

This literature review looks at induction-related issues, including the purpose of induction programs, characteristics of effective induction programs, characteristics of effective mentors, and assessment of beginning teachers. Effective induction programs:

promote learning across a teacher's career; are mandated with substantial paid time; build on teachers' prior knowledge and experiences; pay attention to working conditions; provide adequate resources; involve all relevant levels of the system; provide training for mentors; and provide a range of induction activities. Mentors need training and ongoing support to focus new teachers on their classroom practice, and move it forward. Assessment of beginning teachers requires a shared understanding of what good teaching looks like, and knowledge of how to judge evidence of teaching practice.

**Mitchell, D.E. and Scott-Hendrick, L. (2007). *California Beginning Teacher Support and Assessment and Intern Alternative Certification Evaluation Study: Technical Report*. University of California-Riverside: Riverside, CA.**

This 2007 evaluation of the state of California's BTSA program offers some findings and recommendation for induction policy and program improvement. One of the study's key findings is that the provision of "quality and timely support is probably the most significant factor in determining whether these novice teachers feel that their program experiences have been successful." The evaluation "embraces" and recommends the use of the full-time model of support providers because of the critical importance of the creation of the time needed by support providers to do their work.

**Moir, E., et. al. (2010). *New Teacher Mentoring: Hopes and Promise for Improving Teacher Effectiveness*. Harvard Education Press: Cambridge, MA.**

This book summarizes the principles of high-quality instructional mentoring, describes the elements of a rigorous professional development program, and shares theories and philosophies that support teachers' professional development. Detailed case studies of four urban school districts show how these principles can be applied and highlight the opportunities and challenges involved in implementing these programs in different contexts. The book makes a case for using new teacher mentoring as an entry point for creating a strong professional culture with a shared, aligned understanding of high-quality teaching.

**Moir, E. and Gless, J. (2001). "Quality induction: An investment in teachers." *Teacher Education Quarterly*, 28(1), 109-115.**

This article describes how quality induction can act as a catalyst for changing school cultures and improving the teaching profession by transforming beginning teacher practice and broaden mentors perspective on effective teaching. It articulates five essential components to quality induction: (1) program vision, (2) institutional commitment and support, (3) quality mentoring, (4) professional standards and (5) classroom-based teacher learning.

**Mullinix, B. (2002). *Selecting and retaining teacher mentors. ERIC Digest. U.S. Department of Education, ERIC Clearinghouse on Teaching and Teacher Education: Washington, DC.***

This federal research summary discusses a range of mentor selection and recruitment strategies including appointment, self-nomination, and tying mentor status to career ladders. Mentor selection is most notable when a teacher is effective in the classroom. Mentor retention might include recognizing outstanding mentors and compensating them accordingly. The digest also discusses the importance of the process of matching beginning teachers to mentors.

**Polikoff, M. McGraner, K. and Desimone, L. (2009). *The 'Haves' and the 'Have Nots': Authority and the Distribution of Quality Mentoring?* (Paper presented at the 2009 Annual Meeting of the American Educational Research Association.) University of Pennsylvania: Philadelphia, PA.**

This paper finds that the legal authority of state policy may play an important role in ensuring the provision of high-quality induction for beginning educators. State policy may set boundaries for principals to implementing induction policies in more effective ways than they might otherwise, and they might constrain principals in terms of the idiosyncratic views about their new teachers' prior experiences.

**Portner, H. (editor). (2005). *Teacher Mentoring and Induction: The State of the Art and Beyond.* Corwin Press: Thousand Oaks, CA.**

This book provides insights on how induction and mentoring programs are developed and identifies areas of effectiveness to determine how successful programs can be replicated. Specifically, the book looks at developmental processes, exemplary programs, mentoring constructs and best practices, and connects induction to broader educational issues.

**Rockoff J. (2008). *Does Mentoring Reduce Turnover and Improve Skills of New Employees? Evidence from Teachers in New York City. NBER Working Paper No. 13868.* National Bureau of Economic Research: Cambridge, MA.**

The study looks at the impact of mentoring in New York City by looking at the relationship between teacher and student outcomes and measures of mentor quality. When new teachers spent more hours with their mentor (at least one hour per week), there were gains for students in both reading and especially in math. The study also found that there was a positive impact on teacher retention when mentors had prior experience with and knowledge of a particular school. However, the mentoring program had no impact on retention and student learning overall across the system.

**Roehrig, A., et. al. (2008). "Mentoring beginning primary teachers for exemplary teaching practices." *Teaching and Teacher Education*, 24, 684–702.**

This cross-case analysis of survey, interview, and observation data from beginning primary teachers and their mentors revealed that more effective mentors had more experience as mentors and were more effective teachers than other mentors. More effective beginning teachers communicated more with mentors, more accurately self-reported use of effective teaching practices, and were more open to mentoring.

**Smith, T. M. (2007). "How Do State-Level Induction and Standards-Based Reform Policies Affect Induction Experiences and Turnover among New Teachers?" *American Journal of Education*, 113(2), 273-309.**

This study uses federal Schools and Staffing Survey merged with state-level policy data collected in *Education Week's* "Quality Counts" reports to examine the impact of state policy on beginning teacher turnover. States that mandate participation in induction programs tend to have more beginning teachers mentored, although state-level funding for these programs is not associated with increased mentorship. Requiring that beginning teachers and their mentors be matched by subject, grade, or school does not appear to ensure such a match, although states that have this requirement do have mentorship programs that are more effective at reducing turnover.

**Smith, T. M. and Ingersoll, R. M. (2004). "What Are the Effects of Induction and Mentoring on Beginning Teacher Turnover?" *American Educational Research Journal*, 41 (Summer), 681–714.**

This study found that beginning teachers who were provided with mentors from the same subject field and who participated in collective induction activities, such as planning and collaboration with other teachers, were less likely to move to other schools and less likely to leave the teaching occupation after their first year of teaching.

**Stallion, B. and Zimpher, N. (1991). "Classroom management intervention: The effects of training and mentoring on the inductee teacher's behavior." *Action in Teacher Education*, 13, 42-50.**

This study tested the benefits of mentor training on mentee teacher change related to classroom management. Mentor teachers' own knowledge base – including that gleaned from foundational training – was vital in transferring such knowledge to their mentees. The study provides evidence that mentor training may be an important component to an effective mentoring program for beginning teachers.

**Stanulis, R. and Floden, R. (2009). "Intensive Mentoring as a Way to Help Beginning Teachers Develop Balanced Instruction." *Journal of Teacher Education*, 60(2), 112-122.**

This study looked at two groups of beginning teachers, one of which received intensive mentoring from a university-run induction program and the other through "business as

usual” induction. Intensive mentoring involved the services of a partially released mentor who was “intensively” prepared for the job by university staff and recruited through an interview process. “Business as usual” induction included new teacher orientation, after-school seminars and principal seminars. The Atmosphere, Instruction/Content, Management, and Student Engagement (AIMS) measure of teaching practice, focused on a research-based conception of high-quality teaching known as effective balanced instruction, was used to measure the impact of the intervention. This study shows that intensive mentoring focused on balanced instruction improved teaching practice (as measured by beginning teachers’ AIMS scores) for the experimental group.

**Totterdell, M., et al. (2004). *The impact of newly qualified teachers (NQT) induction programmes on the enhancement of teacher expertise, professional development, job satisfaction or retention rates: a systematic review of the literature on induction.* EPPI-Centre, Social Science Research Unit, University of London: London, U.K.**

This literature review looked specifically at the question: “What are the effects of the roles of mentors or inductors using induction programmes for newly qualified teachers (NQTs) on their professional practice, with special reference to teacher performance, professional learning and retention rates?” It offers numerous implications for policy, practice and research.

**Villar, A. and 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 is a cost-benefit analysis of a comprehensive beginning teacher induction program. It describes how each dollar invested in a comprehensive mentoring program provides a return on investment of \$1.66 over five years. The study concludes that high-quality mentoring programs provide a positive return on investment, both because beginning teachers stay in greater numbers and because those who stay are more effective. The findings show that increasing beginning teacher effectiveness provided greater benefits (47%) than reducing teacher attrition costs (17%).

**Wechsler, M., et al. (April 2010). *Examining The Effects of New Teacher Induction.* SRI International: Menlo Park, CA.**

This evaluation of an induction pilot program in the state of Illinois found a number of positive impacts. First, teachers whose induction focused strongly on instruction, who experienced a variety of induction activities, and who worked in supportive school contexts had higher levels of teacher efficacy. Second, programs that have more control over their mentors—those that have more stringent requirements for mentor selection, provide more training and ongoing support, and hold mentors accountable for their mentoring—provide more intense mentoring and a strong focus on instruction, two contributors to positive teacher outcomes. Also, programs with full-time release mentors were more likely to have more intense mentoring and a stronger focus on instruction.



**Yusko, B. and Feiman-Nemser, S. (2008). "Embracing contraries: Combining assistance and assessment in new teacher induction." *Teachers College Record*, 110(5), 923-953.**

This article provides images of mentoring from two well-regarded induction programs that integrate assistance and assessment to promote quality teaching. A comparative analysis reveals that assistance and assessment can coexist. Participating in assessment and evaluation did not prevent mentors from forming trustworthy relationships, although it sometimes made that more challenging. In both programs, mentors earned respect by establishing credibility as useful support providers. They addressed novices' concerns, but they also assessed how new teachers were meeting students' learning needs. Mentoring can be most educative when mentors engage in assistance and assessment structured by appropriate frameworks and processes, get support from a professional community that upholds professional teaching standards, and receive training and ongoing professional development to carry out their important responsibility.

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## Appendix C

“The Impact of Induction and Mentoring Programs for Beginning Teachers: A Critical Review of the Research.” Richard Ingersoll and Michael Strong.

Citation: Ingersoll, R. and Strong, M. (2011). “The Impact of Induction and Mentoring Programs for Beginning Teachers: A Critical Review of the Research.” *Review of Education Research*. Vol. 81(2), 201-233.

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# The Impact of Induction and Mentoring Programs for Beginning Teachers: A Critical Review of the Research

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*The Impact of Induction and Mentoring Programs for Beginning Teachers:*

*A Critical Review of the Research*

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## **Abstract**

This review critically examines 15 empirical studies, conducted since the mid 1980s, on the effects of support, guidance, and orientation programs— collectively known as induction — for beginning teachers. Most of the studies reviewed provide empirical support for the claim that support and assistance for beginning teachers have a positive impact on three sets of outcomes: teacher commitment and retention, teacher classroom instructional practices, and student achievement. Of the studies on commitment and retention, most showed that beginning teachers who participated in some kind of induction had higher job satisfaction, commitment, or retention. For classroom instructional practices, the majority of studies reviewed showed that beginning teachers who participated in some kind of induction performed better at various aspects of teaching, such as keeping students on task, developing workable lesson plans, using effective student questioning practices, adjusting classroom activities to meet students’ interests, maintaining a positive classroom atmosphere, and demonstrating successful classroom management. For student achievement, almost all of the studies showed that students of beginning teachers who participated in some kind of induction had higher scores, or gains, on academic achievement tests. There were, however, exceptions to this overall pattern – in particular a large randomized controlled trial of induction in a sample of large, urban, low-income schools — which found significant positive effects on student achievement, but no effects on either teacher retention or teachers’ classroom practices. Our review closes by attempting to reconcile these seemingly contradictory findings and also by identifying gaps in the research base, and relevant questions that have not been addressed and warrant further research.

## ***The Impact of Induction and Mentoring Programs for Beginning Teachers:***

### ***A Critical Review of the Research***

For decades, education researchers and reformers have called attention to the challenges encountered by newcomers to school teaching. However traditionally teaching has not had the kind of support, guidance and orientation programs for new employees — collectively known as induction — common to many skilled blue- and white-collar occupations and characteristic of the traditional professions (Waller, 1932; Lortie, 1975; Tyack, 1974). Although elementary and secondary teaching involves intensive interaction with youngsters, the work of teachers is done largely in isolation from colleagues. School reformers and researchers have long pointed out that this isolation can be especially difficult for new teachers, who, upon accepting a position in a school, are often left on their own to succeed or fail within the confines of their own classrooms — often likened to a “lost at sea” or “sink or swim” experience (e.g., Johnson, 1990; Johnson & Birkeland 2003). Others go further — arguing that newcomers often end up placed in the most challenging and difficult classroom and school assignments — akin to a “trial by fire” experience (e.g., Lortie, 1975; Sizer, 1992). Indeed, some have assailed teaching as an occupation that “cannibalizes its young” (Ingall, 2006, p. 140).

Perhaps not surprisingly, teaching has also traditionally been characterized as an occupation with high levels of attrition among newcomers (Tyack 1974; Lortie 1975). All organizations and occupations, of course, experience some loss of new entrants — either voluntarily because newcomers decide to not remain, or involuntarily because employers deem them to be unsuitable. Moreover, some degree of employee turnover, job, and career change is normal and inevitable.

However, teaching has relatively high turnover compared to many other occupations and professions, such as lawyers, engineers, architects, professors, pharmacists and nurses (Ingersoll 2003; Ingersoll & Perda, 2010b) and teacher turnover is especially high in the first years on the job. Several studies have calculated that between 40 and 50 percent of new teachers leave within the first five years of entry into teaching (e.g., Murnane et al. 1991; Hafner and Owings 1991; Grissmer and Kirby 1987, 1992, 1997; Ingersoll 2003).

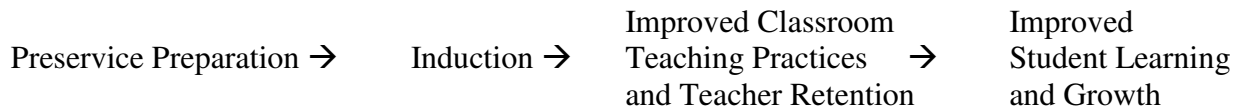
Recent research has also documented that one of the negative consequences of these high levels of turnover in teaching is their link to the teacher shortages that seem to plague schools perennially. In analyses of national data we have found that neither the much heralded mathematics and science shortage, nor the minority teacher shortage, are primarily due to an insufficient production of new teachers, as is widely believed. In contrast, the data indicate that school staffing problems are to a significant extent a result of a “revolving door” -- where large numbers of teachers depart teaching long before retirement (Ingersoll & Perda, 2010a; Ingersoll & May 2011; see also Achinstein et al. 2010). Moreover, the data show that beginning teachers, in particular, report that one of the main factors behind their decisions to depart is a lack of adequate support from the school administration.

These are the kinds of occupational ills that effective employee orientation and induction programs seek to address and in recent decades a growing number of states, school districts and schools have developed and implemented induction support programs for beginning teachers. Our background analyses of national data show that the percentage of beginning teachers who report that they participated in some kind of induction program in their first year of teaching has steadily increased over the past two decades — from about 40 percent in 1990 to almost 80

percent by 2008. By 2008, 22 states were funding induction programs for new teachers (Education Week, 2008).

The theory behind induction holds that teaching is complex work, pre-employment teacher preparation is rarely sufficient to provide all of the knowledge and skill necessary to successful teaching, and a significant portion can only be acquired while on the job (see e.g., Gold, 1999; Hegsted, 1999; Feiman-Nemser 2001; Ganser, 2002). Hence, this perspective continues, there is a necessary role for schools in providing an environment where novices are able to learn the craft and survive and succeed as teachers. The goal of these support programs is to improve the performance and retention of beginning teachers, that is, to both enhance, and prevent the loss of, teachers' human capital, with the ultimate aim of improving the growth and learning of students (see Figure 1).

**Figure 1 – Theory of Teacher Development**



Typical of theory underlying induction is Zey's (1984) Mutual Benefits model, drawn from social exchange theory. This model is based on the premise that individuals enter into and remain part of relationships in order to meet certain needs, for as long as the parties continue to benefit. Zey extended this model by adding that the organization as a whole (in this case the school) that contains the mentor and mentee also benefits from the interaction.

From this theoretical perspective, teacher induction is distinct from both pre-service and in-service teacher professional development programs. Pre-service refers to the education and preparation candidates receive before employment (including clinical training, such as student



teaching). In-service refers to periodic upgrading and additional professional development received on the job, during employment. Theoretically, induction is intended for those who have already completed basic pre-employment education and preparation. These programs are often conceived as a “bridge” from student of teaching to teacher of students. Of course, these theoretical distinctions can easily become blurred in real situations.

While the overall goal of these teacher development programs is to improve the performance and retention of beginning teachers, parallel to the induction processes common to other occupations, induction theorists have identified multiple objectives and emphases such programs may hold (e.g., Feiman-Nemser 2001; Ganser, 2002). Among them are teacher socialization, adjustment, development, and assessment. For instance, some programs are primarily developmental and designed to foster growth on the part of newcomers; in contrast others are also designed to assess, and perhaps weed out, those deemed ill-suited to the job. Moreover, teacher induction can refer to a variety of different types of activities for new teachers — orientation sessions, faculty collaborative periods, meetings with supervisors, developmental workshops, extra classroom assistance, reduced workloads, and, especially, mentoring. Mentoring is the personal guidance provided, usually by seasoned veterans, to beginning teachers in schools. In recent decades, teacher mentoring programs have become a dominant form of teacher induction (Fideler & Haselkorn, 1999; Strong, 2009; Britton, Paine, Raizen, & Pimm, 2003; Hobson Ashby, Malderez, & Tomlinson, 2009); indeed, the two terms are often used interchangeably.

The overall objective of teacher mentoring programs is to give newcomers a local guide, but the character and content of these programs also vary widely. Duration and intensity, for example, may be very different from program to program. Mentoring programs can vary from a

single meeting between mentor and mentee at the beginning of a school year, to a highly structured program involving frequent meetings over a couple of years between mentors and mentees who are both provided with release time from their normal teaching loads. Programs also vary according to the number of new teachers they serve; some include anyone new to a particular school, even those with previous teaching experience, while others focus solely upon novices. Finally, mentoring programs vary as to how they select, prepare, assign, and compensate the mentors themselves. How carefully mentors are selected is an issue for programs, as is whether selection to be a mentor is truly voluntary or a semi-mandatory assignment. Some programs include training for mentors; some programs do not. Programs differ according to whether and how they pay mentors for their services. Some programs devote attention to the match between mentor and mentee; others do not. For instance, some programs may strive to see that new secondary-level math teachers are provided with mentors who have had experience teaching secondary-level math.

What kinds of induction and mentoring programs exist, and under what circumstances they help, are fundamental questions for researchers, educators in the field implementing such programs, and policymakers faced with decisions about supporting such programs. For the latter groups especially, investing in beginning teachers poses a conundrum. On the one hand, as induction theory holds, investments that enhance the effectiveness of new teachers, can add to the attractiveness of the job, improve teacher retention and improve other outcomes. On other hand, if a significant portion of those entering teaching view it as a temporary line of work, and plan to leave soon regardless of such enhancements, the investments in human capital could be lost to the school.

These issues and concerns have gained increased attention in recent years – perhaps partly due to downturns in the larger economy and a greater emphasis on accountability and partly because of changes in the character of the teaching force itself. After two decades of flat growth, since the mid-1980s the teaching force in the United States has dramatically increased in size. This upsurge in hiring has resulted in an equally dramatic growth in the number of newly hired, first-year teachers the past two decades — from 50,000 in 1987-88 to 200,000 in 2007-08. In the late-1980s the modal teacher had 15 years of teaching experience; by 2008, the modal teacher was a beginner in his or her first year of teaching. Moreover, those data show that the attrition rates of first-year teachers – now the largest group within the occupation – have slightly increased over the past two decades (Ingersoll & Merrill, 2010). In short, both the number and instability of beginning teachers have been increasing.

For all of these reasons, with the growth of induction and mentoring programs, there has also been a mounting interest in empirical research on the variety and value of these initiatives. Over the past couple of decades, numerous studies have been done on different types of programs. However, it is unclear how much of this research warrants unambiguous conclusions about the value of the induction program being considered. Some studies appear to lack methodological rigor and draw conclusions that reach beyond what their data truly support. Moreover, the content, duration, and delivery of programs vary so much from one site to another that it is not clear to what extent general conclusions about induction can be drawn from the research. Hence there is a need to critically assess the empirical research on teacher induction in order to determine its scope and merit and the conclusions that may be drawn from it.

A number of useful reviews on the topic of induction have been published over the past two decades (for a recent anthology see, Wang, Odell, & Clift, 2010). Many of these reviews

have focused on the theory, rationale and conceptualization of induction (e.g., Gold, 1999; Hegsted, 1999; Feiman-Nemser & Schwille, 1999; Feiman-Nemser, 2001 Ganser, 2002). Others have focused primarily on the character of specific teacher induction reforms and initiatives (e.g., Fideler & Haselkorn 1999; Scherer, 1999; Serpell & Bozeman, 1999; Wang & Odell, 2002). Still others examined teachers' experiences with induction (e.g., Wang, Odell, & Schwille, 2008). At least one review studied the conditions that give rise to effective mentoring and looked at the benefits of mentoring for both mentors and mentees (Hobson et al., 2009). However, there have been few efforts to provide comprehensive and critical reviews of empirical studies that evaluate the effects of induction on various outcomes. In 2004, we released an online review of empirical research on mentoring, in particular, and its effects on one outcome — teacher retention (Ingersoll & Kralik, 2004). In 2009, a second critical assessment of induction research appeared (Strong, 2009). The present review updates and expands these two earlier efforts, by including more recent research and by broadening the purview to include studies on the effects of induction in general and on outcomes beyond teacher retention alone. Our objective is to provide researchers, policymakers and educators with a reliable and current assessment of what is known and not known about the effectiveness of teacher induction and mentoring programs. Our objective is also to identify gaps in the research base and pinpoint relevant questions that have not been addressed and that warrant further research.

### **Review Methods**

We began by contacting leading researchers in the field and analysts in state governmental agencies. We examined existing systematic, narrative, or traditional reviews of such research, and we searched online databases including Dissertation Abstracts, Educational Resources Information Clearinghouse (ERIC), Psychological Abstracts, Sociological Abstracts,

PsychInfo, Wilson Index, Sage online database, and Google Scholar. In the online searches we used combinations of three key terms – beginning teacher induction; mentoring programs; and teacher mentors – with several other terms – program evaluation, teacher improvement, effectiveness, retention, student achievement, and teaching practice. In our search, we included both published and unpublished documents on teacher induction and studies both from the U.S. and from other countries. Interest in teacher induction and mentoring appeared to gain momentum in the mid-1980s; hence, our review focuses on studies from that period to the present.

Our initial search located over 500 documents concerned with teacher induction and mentoring. These included essays, reviews, monographs, reports and articles. In a second step, we excluded all documents that were not empirical studies reporting data on beginning teacher induction and mentoring programs – trimming our list to about 150 documents. We then took a closer look at the documents themselves and excluded any of these empirical studies that failed to meet any of three criteria. This step resulted in a further reduction to 15 studies selected for this review (see Table 1). To the best of our knowledge, these 15 studies, forming the core of this review, exhaust the evidence base concerning the effects of teacher induction, in so far as the evidence meets the following criteria:

### ***Evaluation and Outcomes***

We included only empirical studies that sought to evaluate the effects of induction using one or more outcomes. We excluded empirical studies that were descriptive rather than evaluative; i.e., studies that sought solely to summarize or describe the extent, process, content or character of induction programs (e.g., Fideler & Haselkorn 1999; Ganser, 1994, 1996; Schaffer, Stringfield, & Wolfe, 1992; Wollman-Bonilla, 1997). This meant that we excluded research on

induction that focused solely on the “lived experiences” of teachers (Hobson et al., 2009). We recognize that firsthand accounts from beginning teachers on the content and processes of induction programs may provide rich information, but we elected to concentrate on studies that provided evidence of effects. We also excluded evaluative studies that focused on outcomes other than the effects of induction programs on teachers or their students. For example, we excluded research that examined the factors, policies, and conditions that affect the provision of quality induction (e.g., Youngs, 2007) and omitted studies that evaluated only the effects of mentoring programs on mentors themselves.

### ***Comparisons***

We included only evaluative studies of induction that compared outcome data from both participants and non-participants in particular induction components, activities, or programs. The majority of empirical studies we initially examined were reports of program evaluations that collected data on outcomes solely from those who had participated in the induction programs being evaluated (e.g., Wilson, Darling-Hammond, & Berry, 2001; Mitchell & Scott, 1998; Gregson & Piper, 1993; VILLEME, Hall, Burley, & Brockmeier, 1992; Stroot et al., 1999). Such studies can provide valuable feedback to providers of, and participants in, such programs, but they cannot offer unambiguous conclusions about the effects of participating, or of opting out.

Some studies selected for our review were able to compare those participating in induction with those who did not participate in induction. However, since induction has become widespread, most of the studies we review compare teachers according to their *degree* of participation, i.e., those with more or less participation in one or more induction components, activities or programs. To use a medical research analogy, most the studies reviewed here are not

the equivalent of research that compares taking aspirin with not taking aspirin, but of research that compares taking different dosages of aspirin, or taking aspirin versus taking other drugs.

### ***Explicit Description of Data and Methods***

We included only studies that contained explicit descriptions of their data sources, sample sizes, research methods, and outcomes. For instance, we excluded studies whose outcomes were not sufficiently well defined or measured for us to assess the accuracy of the results (e.g., Bradley & Gordon, 1994; Perez, Swain, & Hartsough, 1997). In the case of quantitative studies, we also included only those providing tests of statistical significance, where possible and appropriate.

### **Studies Reviewed**

The studies we review vary in their data and methods. Some were evaluations of specific district or state mentoring programs. Some involved close-up examination of small samples of classrooms. Others used secondary analysis of large-scale databases to statistically investigate the association of induction with outcomes. The nature of the data reported across the studies reviewed did not permit a meta-analysis without eliminating a significant number of studies, along with the useful information they provide.

Compared to some other topics, such as school size (e.g., Leithwood & Jantzi, 2009), the evidence base for this review is relatively small. Given the diminished sample size, we are able to summarize a selection of the studies in some detail, elaborating the strengths and limitations of each. The outcomes of the studies we review fall into three broad categories: 1) teachers' job satisfaction, commitment, retention, and turnover, 2) teachers' classroom teaching practices and pedagogical methods, and 3) student achievement. Our review is organized in three sections, corresponding to these three major sets of outcomes. The exception is the largest study to date –



a randomized controlled trial which investigated the impact of comprehensive induction on all three sets of outcomes (Glazerman et al., 2010) – which we review in a separate section.

### **The Effects of Induction on Beginning Teacher Commitment and Retention**

In this section we focus on seven studies (see Table 1) that provide evidence about the relationship between participation in induction and a beginning teacher’s job satisfaction, commitment, retention, or turnover. Three were evaluations of specific state or school district beginning teacher induction programs. Four involved secondary statistical analyses of large-scale nationally representative teacher surveys.

In most of the studies, the investigators examined data on teachers’ actual retention or departures obtained from surveys of individual teachers, districts, or state personnel databases. In two studies, the investigators used as an outcome beginning teachers’ self-reported *intentions* regarding how long they planned to remain in teaching, rather than teachers’ actual retention or turnover. It is unclear how closely self-reported intentions mirror actual retention behavior; this measure most likely captures teachers’ degree of commitment and job satisfaction rather than their longevity per se.

#### ***Evaluations of State and District Mentoring Programs***

All three evaluations of specific school district or state beginning teacher induction programs found that induction had positive effects. That is, beginning teachers who received some type of induction had higher job satisfaction, commitment, or retention. We describe the two most thorough of these studies in some detail below.

In 2005, Kapadia et al. (2007) evaluated district-wide induction programs in the Chicago public schools. They analyzed data for 1,737 novice teachers, representing 72 percent of the first- and second-year teachers employed in the district in 2005. The researchers divided the

levels of induction and mentoring support that each teacher received into three groups: weak, average, and strong. Interestingly, even though induction was compulsory in the school district, about one-fifth of the teachers reported that they were not involved in any induction program. The researchers measured the influence of participation in induction programs on three self-reported teacher outcomes: how positive was a teacher's first year on the job; teachers' intentions to stay in teaching; and their intentions to stay in the same school. The study used multilevel logistics regression for its analysis and was able to control for background characteristics of teachers, classrooms, and schools, including working conditions that could affect the outcomes. Comparing those who received some level of induction with the 20 percent who reported receiving none, the study found that participation in induction, by itself, had little effect on any of the three outcomes. However, among those who received some level of induction, teachers in the strong induction group showed higher levels on all three outcomes. Mentoring was an important component, especially at the elementary level, but comprehensive induction, comprising multiple supports, had the most effect on intentions to remain in the same school. Kapadia et al. concluded that programs should focus on selection and training of mentors to ensure high levels of support, and that teacher collaboration and principal assistance are the most influential factors for novices.

A second study evaluated the Texas Beginning Educator Support System (TxBESS) (Fuller, 2003; Cohen & Fuller, 2006; see also Charles Dana Center, 2001). Begun in 1999, TxBESS was a statewide comprehensive program of instructional support, mentoring, and formative assessment to assist teachers during their first years of service in Texas public schools. School districts had discretion in selecting participants for the program. About 15 percent of the state's new teachers were involved. A key program objective was to improve retention of

beginning teachers. The study obtained information from TxBESS participants through an annual mailed survey questionnaire. Among other things, the survey sought information on the nature of the relationship between mentors and mentees, including: time spent with mentor; whether release time was granted (to both mentor and mentee) for these meetings; whether the mentee wanted a mentor; and the nature of the meetings with the mentor (e.g., formal vs. ad hoc, provided assistance with classroom management, assisted with learning the “unwritten rules” of the school, etc.). The study obtained data on teacher retention from a state personnel database and compared annual retention rates of TxBESS participants with those of all beginning teachers in the state from 1999-2000 through 2002-2003.

Analysis showed that among teachers who entered in the 1999-2000 school year, TxBESS participants left the Texas public school system at statistically significantly lower rates, for each of their first three years, than did teachers who did not participate in TxBESS. Upon disaggregating the data, the researchers found that these effects held up (in both magnitude and statistical significance) in both high-poverty and high-minority enrollment schools. This was an important finding because these schools more often used the state program and had disproportionate numbers of beginning teachers in the TxBESS program, but also generally had higher attrition of new teachers. Moreover, the analysis found that the retention effects held up across school levels; elementary, middle, and high schools all had significantly higher retention of TxBESS participants. Finally, the analysts also found that TxBESS appeared to help underqualified beginning teachers. TxBESS participation by beginning teachers who did not hold full certification, or who had been assigned to teach subjects out of their certification, resulted in better retention than when similarly underqualified teachers did not participate in TxBESS.

The TxBESS study has several limitations worth noting. First, since school districts selected participants for the program in different ways, differences in the characteristics of participants and nonparticipants, rather than the program itself, might account for differences in outcomes. Second, since school districts differed in which components they used, variations in program content could account for different outcomes. Third, this study did not control for other factors that could also affect teacher retention, regardless of the existence of an induction or mentoring program.

### ***Secondary Analyses of Large-Scale Nationally Representative Data***

In addition to evaluations of specific induction programs, we also reviewed four studies that undertook secondary analyses of large-scale, nationally representative databases from the National Center for Education Statistics of the U.S. Department of Education to investigate the statistical association between induction and teacher retention. Three of the four studies found positive effects of induction; beginning teachers who received some type of induction had higher commitment to continuing as teachers or had higher retention. One study found no effects, but as we discuss below, this analysis, along with one of the studies showing positive effects, had serious flaws that undermined its validity.

In 2000, the National Center for Educational Statistics published an analysis undertaken by Henke et al. that used the 1993 Baccalaureate and Beyond Survey (B&B:93) to examine the experiences of new teachers, including the relationship between beginning teachers' participation in induction programs and their attrition. The B&B is a longitudinal survey that followed a nationally representative sample of those who graduated from undergraduate institutions in the 1992-93 academic year. This cohort was interviewed during their senior year in 1993, interviewed in 1994 for a first follow-up, and interviewed a third time in 1997 for a second

follow-up. The base sample who participated in all three interviews comprised 7,294 students. Henke et al.'s analysis focused on the experiences of the 7,294 college graduates from the class of 1992-93 who entered elementary or secondary teaching.

Of the teachers in this sample 46 percent reported participating in a school induction program when they entered teaching. The analysis revealed that about one-fifth of recent college graduates who entered teaching between 1993 and 1997 were no longer teaching by July 1997; it also showed that participation in induction was negatively related to attrition from the occupation, at a statistically significant level. Eighty-five percent of those who had participated in induction had stayed in teaching, compared with 74 percent of those who had not participated.

The B&B findings provide evidence from a nationally representative survey that teacher induction is related to lower teacher attrition. However, there are several important limitations to the B&B data and to the Henke et al. analysis. First, the item on teacher induction was a simple yes/no question and provided no detail on the type, characteristics, and components of induction. There is, for example, no way of knowing whether the induction program included a mentoring component. Second, the B&B survey focused on teachers fresh out of college with no prior teaching experience. This group is a subset of all those hired into teaching jobs in any given year and, hence, only a portion of those who did or did not participate in induction programs in any given year. Third, the Henke et al. analysis of the relationship between induction and attrition is based on bivariate correlations of one factor with the other and does not control for, or hold constant, other factors that could account for differences in teacher attrition and for any apparent connection between teacher induction and teacher attrition.

A second study used data from the 1999-2000 Schools and Staffing Survey (SASS) and its supplement, the 2000-2001 Teacher Follow-up Survey (TFS), to analyze the relationship

between participation in various induction activities and the retention of beginning teachers (Smith & Ingersoll, 2004; Ingersoll & Smith, 2004a). SASS is a nationally representative survey of teachers and administrators from public and private schools. Twelve months after the administration of the original SASS questionnaires, the same schools were again contacted, and all those in the original teacher sample who had moved from or left their teaching jobs were given a second questionnaire to obtain information on their departures. This latter group, along with a representative sample of those who stayed in their teaching jobs, constituted the TFS. The 2000-2001 TFS sample comprised about 7,000 elementary and secondary teachers; the study focused solely on beginning teachers — those without prior experience and in their first year of teaching in 1999-2000 — a national sample of 3,235.

The analysis examined the association of three sets of induction-related measures drawn from an extensive battery of such items in the teacher survey questionnaire. The first set asked teachers whether they were working closely with a master or mentor teacher and, if so, whether the mentor was in the same subject area. The second set asked teachers whether they had any of the following collective supports: 1) seminars or classes for beginning teachers; 2) regular or supportive communication with their principal, other administrators, or department chair; 3) common planning time or regularly scheduled collaboration with other teachers on issues of instruction; and 4) participation in a network of teachers (e.g., one organized by an outside agency or over the internet). The third set of items asked teachers whether they received additional help to help ease their transition, including 1) a reduced teaching schedule; 2) a reduced number of preparations; or 3) extra classroom assistance (e.g., teacher aides).

The study's primary question was: Does receiving any of these supports improve teacher retention? To answer this question, the researchers undertook a series of multinomial logistic

regression analyses of the association between receiving these supports and the likelihood of beginning teachers' moving or leaving at the end of their first year on the job. In order to rule out other factors that might account for the observed effects of induction, the models included controls for numerous characteristics of teachers and their schools. After controlling for these background characteristics, the authors found that induction support was significantly associated with teachers' likelihood of turnover. But the analysis also found that the strength of the association depended on the type and number of supports. The strongest factors were having a mentor from the same field, having common planning time with other teachers in the same subject, and having regularly scheduled collaboration with other teachers. The weakest factors were a reduced teaching schedule, a reduced number of preparations, and extra classroom assistance.

The data also revealed that induction supports, activities, or practices rarely exist in isolation. In other words, of beginning teachers who had some kind of induction, most received several types of support. To look at the collective impact of receiving more than one support, the researchers tested the effects of packages or bundles of supports on retention. The components selected for each package were based on how many teachers received them and the strength of their association with retention. The results showed that, collectively, as the number of components in the packages increased, the probability of turnover decreased, but also that the number of teachers receiving the package decreased. Participation in these activities, collectively, had a very large impact — the probability of a departure at the end of their first year for those getting a comprehensive package was less than half that of those who participated in no induction activities.



This analysis offers strong findings, especially for the advantages of bundles and packages of multiple induction components. One advantage of large-scale teacher databases, such as the SASS/TFS, is that they allow national assessments of whether a number of components of induction are associated with teachers' moving and leaving, after controlling for key background characteristics of teachers and their schools. However, there are important limitations to the 1999-2001 SASS/TFS database and to this study.

First, the questionnaire items provide limited depth and detail on the content and character of teacher induction and mentoring. For example, the survey asked teachers which kinds of supports their schools provided, but little information was obtained on the intensity, duration, cost or structure of induction programs — information of vital importance to policymakers who must choose among many models. The analysis tells us, for example, that beginning teachers with mentors from the same field were less likely to leave after their first year, but many very different kinds of programs were no doubt lumped together in the responses to the mentoring question. It is likely that some of these programs were highly effective, some were moderately effective and others were not effective at all. The analysis was not able to discern among them. Similarly, while the 1999-2000 SASS asked teacher mentees to evaluate how helpful their mentors were, little else was obtained on the characteristics of the mentors. Some observers have argued that the mere presence of a mentor is not enough; the mentors' knowledge of how to support new teachers and skill at providing guidance are also crucial (e.g., Kyle, Moore, & Sanders, 1999; Evertson & Smithey, 2000). These are important policy issues that the SASS data cannot address.

Second, while the statistical models in this study controlled for a wide range of teacher and school factors, the study did not control for or rule out other organizational and working

conditions that likely exist in schools with higher quality induction packages and also affect turnover.

In a subsequent unpublished follow-up to this study, Ingersoll & Smith (2004b) disaggregated the 1999-2001 Schools and Staffing Survey/Teacher Follow-up Survey to examine levels and effects of induction by school poverty levels. They found that the amount of induction received and its effect on turnover varied by the schools' poverty level. Their data revealed that teachers in high-poverty schools were at least as likely as, if not more likely than, their counterparts in low-poverty schools to receive and participate in induction and mentoring. The effect of these activities on reducing turnover, however, differed by school poverty level. While the likelihood of leaving teaching at the end of the first year was significantly less in low-poverty schools where new teachers were matched with a mentor and had opportunities to collaborate with other teachers, the impact of these activities on retention in high-poverty schools was small and statistically insignificant. Further, while participation in a combined comprehensive package, or a greater number of induction activities, was associated with higher retention in low-poverty schools, this was not the case in high-poverty schools. The investigators concluded that either the quality of these programs differed substantially between high- and low-poverty schools or that the organizational context in which new teachers enter teaching differed so dramatically between low and high-poverty schools that the latter require different approaches to the socialization and support of new teachers. Unlike the earlier analysis, this second follow-up study controlled for a wide range of other organizational and working conditions, such as the quality of school leadership, the degree of student discipline problems and the amount of faculty input into decision-making. Positive levels of these factors were likely to co-exist in schools with higher quality induction packages and also to affect turnover. Interestingly, however, controlling for

these factors did not change the initial findings — that induction had strong effects in low-poverty schools, but not in high-poverty schools.

We reviewed two other studies that also analyzed data from the 1999-2000 Schools and Staffing Survey to examine the relationship between induction and retention. However, both studies had serious flaws in their data sample and analytic method, making their findings of limited usefulness. The 1999-2000 SASS limited the questionnaire items on induction to teacher-respondents in their first through fifth years of teaching, as of the year of the survey. Hahs-Vaughn & Scherff (2008) further restricted their analytic subsample to English teachers who, during the 1999-2000 school year, were in their first through fourth years of teaching, that is, the four cohorts who began teaching between the 1996-1997 and 1999-2000 school years, yielding a small sample of 86. The objective of their analysis was to assess the relationship between the amount of induction these four cohorts of beginning teachers experienced during their first year and the likelihood they would move or leave in later years. They found that induction had little effect.

SASS is a cross-sectional survey, and the TFS is only a one-year longitudinal survey — it re-surveys the original SASS sample 12 months later. The 1999-2001 SASS/TFS collected data from a sample of all those teaching in 1999-2000, and whether they moved or left between the 1999-2000 and 2000-2001 school years. Hence, for cohorts who entered before the 1999-2000 school year, the 1999-2001 SASS/TFS includes only *those still teaching as of 1999-2000*; by definition, it excludes those in earlier cohorts who moved or left in prior years. Hence, the study cannot assess the impact of induction on turnover of cohorts of teachers in their first through fourth years of teaching, because those in their second through fourth years who had already departed are no longer in the sample. In other words, the SASS/TFS data do not support

longitudinal analysis of more than one cohort, as Hahs-Vaughn & Scherff sought to do. Analyses using the SASS/TFS to examine the effect of an intervention such as induction on turnover must necessarily focus on first-year teachers.

A similar problem holds for Duke et al. (2006). They, too, used the 1999-2000 Schools and Staffing Survey, and their objective was also to assess the impact of induction (along with field of undergraduate degree) on beginning teachers. Rather than actual turnover, they used as their outcome teachers' reports of how long they intended to remain in teaching. They found that induction had a positive impact on teachers' plans to stay. While their subsample was larger than Hahs-Vaughn & Scherff's, Duke et al. also failed to limit their analysis to first-year teachers. Their analysis, like that of Hahs-Vaughn & Scherff suffers from the same data censoring problem, thus also making the findings of limited usefulness.

### **The Effects of Teacher Induction on Beginning Teachers' Classroom Practices**

We review five studies (see Table 1) that provide evidence about the relationship between participation in induction and how well beginning teachers taught, including their skill, practices, development, and pedagogical methods. The strength of these studies is their close observation of teachers' actual behavior in classrooms or their careful assessment of teachers' practices through some kind of reflective interview. However, such data collection can be time-consuming, and the studies here necessarily focused on small teacher samples (from 6 to 287 teachers). A limitation of small samples, of course, is their low generalizability, and two of the five studies did not include tests of statistical significance (Roehrig Bohn, Turner & Pressley, 2008; Davis & Higdon, 2008). Studies that attempt to measure teachers' practices also face serious issues of validity and reliability and can encounter cognitive issues related to the observation of human behavior (for a discussion, see Strong, 2009).

None of these studies compared teachers who participated in induction with teachers who did not participate. In each of the five studies, all teachers in the sample participated in some induction, but the amount varied. Hence, the analyses compared teachers according to the degree and type of support they received from the program in their district. Four studies focused on the effects on beginning teachers of having different types of mentors. One of these four examined the effects of having trained mentors compared to having untrained mentors (Evertson & Smithey, 2000); two of the four examined the effects of receiving the existing district or school-based mentoring compared to having an additional mentor supplied by the researchers (Roehrig et al., 2008; Davis and Higdon, 2008); the fourth study examined the effects of receiving the existing district induction program (entailing mentoring, orientation, and seminars) compared to receiving intensive mentoring provided through a school/university partnership (Stanulis & Floden, 2009).

All of these studies used a variety of classroom teacher observation instruments that focused on aspects of classroom atmosphere, instructional methods, and classroom management. They all undertook at least two, and often three, classroom observations of each teacher, usually lasting several hours. Only one of the four studies randomly assigned participants to treatment and control groups (Evertson & Smithey, 2000). With one exception, all of the studies reported positive effects for their induction/mentoring treatment group. The exception (Roehrig et al., 2008) had ambiguous findings; beginning teachers regardless of induction intensity declined in their use of effective teaching practices over the course of their first year, but the more intensive group had a smaller decline than that the less intensive group.

The largest and most ambitious of this group of five studies (Thompson, Paek, Goe, & Ponte, 2004) is worth describing in some detail, since it is unique in both approach and sample

size. In 2002, this research team was commissioned to study the impact of California's Beginning Teacher Support and Assessment program (BTSA) and its accompanying California Formative Assessment and Support System for Teachers (CFASST). All new teachers in California are required to receive BTSA support. Mentoring is the core element of this program, along with formative assessment. Other components of induction are optional, and BTSA programs vary widely across the state. Thus, the study compared teachers according to how much support they actually received. The study focused on the impact of the program on the teaching practices of beginning teachers and on the learning of their students.

The study surveyed the entire population of 1,125 third- to fifth-grade public school teachers in the third year of their teaching careers in California. This represented 78 California BTSA programs in 107 school districts. However, the study was able to obtain survey responses from only 287 teachers, for a 26% response rate — most likely not representative. From the surveys, the study categorized teacher respondents into high, middle, or low levels of induction engagement. The researchers then interviewed and observed smaller subsets of these teachers to obtain data for nine measures of teaching practice, such as instructional planning, reflection on practice, student questioning practices, feedback practices for students and depth of student understanding. The study found that beginning teachers with high engagement in induction outscored the low engagement group on seven of nine measures of teaching practice, although for only one measure were the differences at a statistically significant level. The authors concluded that, overall, their results demonstrated that BTSA/CFASST had a positive impact on teachers.

This is the only study we found that attempts to use multiple sources of data, including classroom observation, to measure teachers' practices, while sampling teachers from a wide

variety of school districts and programs. However, along with a non-representative sample, the study has weaknesses in the observation and interview data and processes, which the authors acknowledge and discuss. These included a lack of clarity regarding the definition of items, researcher fatigue problems handling the coding of observations on the same day they were collected, bias in the selection of students for interview, the unreliability of the insights of younger students, and the sheer number of items from the instrument.

### **The Effects of Teacher Induction on Student Achievement**

We review four studies (see Table 1) that provide evidence about the relationship between beginning teachers' participation in induction and the academic achievement of their students. Two studies focused on California's Beginning Teacher Support and Assessment program, one study examined a similar induction program in an unnamed large, urban, east coast school district and one study evaluated a similar induction program in New York City. Mentoring was the core element of these induction programs and hence the focus of these evaluations. Since all teachers in the samples participated in the mentoring program, these studies compared teachers according to the degree and type of support they received. The two studies in California and the study of an large, urban, east coast district each found evidence that greater participation by beginning teachers in mentoring programs had a positive impact on their students' achievement; the New York City study showed mixed effects — some positive effects, but also, in some comparisons, no effects.

One of these four studies is the project by Thompson and colleagues (2004), described above. In addition to examining the impact on beginning teachers' teaching practices, this study also examined the relationship between the degree of beginning teachers' engagement with district induction programs and their students' academic achievement. The researchers did not

have access to data on gains over time in student achievement scores; instead, they used data on student achievement test scores at one point in time, limiting the study's ability to make conclusions about the impact of induction support on student achievement. Moreover, the study had a low response rate and a non-representative sample because the analysis was able to obtain achievement test data for the students of only 144 of the 287 teachers who responded to the survey, reducing the sample to 13 percent of the target population of all third- to fifth-grade public school teachers in the third year of their teaching careers in California. The study used hierarchical linear modeling techniques to examine the relationship between student test scores and each teachers' degree of induction engagement (high, medium, or low), after controlling for a number of key factors, including school-wide academic performance, student socioeconomic status, and student English language-learner status, nested within individual teachers' classrooms. The analysis found that, across all six subtests of the standardized achievement exam, the students of teachers who had a high level of induction engagement outscored the students of teachers with a low level of engagement, after controlling for other factors. The authors concluded that, although none of the score differences was statistically significant, the consistency of the results across all tests suggested that "BTSA/CFASST has a positive impact on student test scores" (Thompson et al., 2004, p. 13).

A pair of studies by Fletcher and colleagues also evaluated the effects on student learning of school district induction programs in California and in a large, urban, east coast district. Fletcher et al. (2008) focused on the effects on student reading achievement of teachers' having different types of mentors. This study examined data from three California school districts. The district induction programs varied according to how they were implemented in the teachers' second year. All three districts used mentors who were released from all teaching duties, with



mentor to mentee caseloads of 1:15 in the first year. In the second year, one district shifted to an in-school “buddy” mentor with no release time; one district doubled the mentor caseload; and the third district maintained the same caseload, thereby preserving the same high intensity of induction support. Using hierarchical linear modeling techniques, the researchers found that the third district, with a more intense mentoring model, showed higher class reading gains for its beginning teachers than the other two districts, after controlling for differences in district size, poverty and student race-ethnicity. The authors could not infer causal relationships from this study because the limited sample size resulted in a design that did not let them distinguish school effects from district effects.

Another part of Fletcher et al.’s (2008) study focused on the third district, with its high-intensity mentoring model. Within each school, the analysis compared beginning teachers with veteran teachers as a whole. Veteran teachers may have had some induction support in the past, but they had not participated in the district’s comprehensive mentoring program. The objective of the analysis was to examine the impact of participation in mentoring on student test gains over five years. The analysis showed that although beginning teachers were more likely to be assigned to teach low-achieving classes, their students had, on average, equal or greater achievement than those of the more experienced teachers. A limitation of this design, comparing beginning with experienced teachers in order to test for effects of induction, is that the researchers did not know how much induction support the experienced teachers had received, or to what extent more effective teachers might have moved to other, more attractive teaching positions or into school administration, thereby biasing the sample.

The second study by Fletcher & Strong (2009) compared two groups of beginning fourth- and fifth-grade teachers in a large, urban, East Coast school district. One group had support from

a full-release mentor, while teachers in the other group were assigned a site-based mentor. The mentors received the same training, but they differed in caseload and release time. Teachers who received the support of a full-time mentor tended to have more low-achieving and low-income students than did teachers in the other group. In spite of this, students of teachers in the full-release mentor group showed greater achievement gains after one year. However, the opportunity to draw causal conclusions was again limited by the small sample size and a design that conflates potential teacher and school effects.

A final study (Rockoff, 2008) examined the effects of mentoring on student achievement (and also on teacher retention) in New York City. As in the California studies, the investigator was not able to compare participating with non-participating new teachers, since all new teachers were enrolled in the district's program. The study compared beginning teachers with other newly hired teachers who had prior teaching experience and hence were not eligible for mentoring. Some of the latter may have had mentoring in prior schools, hence the comparison has limitations. However, within the group receiving mentoring, Rockoff compared those who received more time with a mentor with those who received less time.

Overall, the study found no differences in student achievement gains between newly hired, inexperienced teachers who received mentoring and newly hired, experienced teachers who did not receive mentoring. This is not unexpected. However, the study did find that teachers who received more hours of mentoring had higher student achievement score gains, in both math and reading, than those who had fewer hours of mentoring.

Since the activities of an induction program are at least one step removed from the students (see Figure 1), it is challenging to design research that can test the existence of a causal relationship between new teacher induction and student achievement. The above four studies

show some consistency in results, but they also share a number of limitations, most of which the authors acknowledge. The most prominent weakness is that none of these studies involves random assignment of teachers to induction or mentoring groups. Neither students nor teachers are randomly distributed among classes and schools; parents may select school districts, schools, and even teachers; teachers are not randomly assigned among different levels of classes within schools; district resources may be differentially distributed among schools; classroom climates and other contextual conditions vary. All these factors may influence student performance and, unless controlled, may account for any differences in student achievement gains that appear to be due to teacher induction. With the possible exception of one small study using random assignment (Evertson & Smithey, 2000), this major limitation applies, in varying degrees, to all of the studies reviewed thus far for all three outcomes.

### **The Mathematica Study of the Effects of Induction on Beginning Teachers' Practices, Retention and Student Achievement**

The largest, most ambitious and most important study investigating the impact of induction was funded by the U.S. Department of Education and conducted by a research team from Mathematica Policy Research of Princeton, NJ.<sup>2</sup> This study used randomized controlled trial methodology. The major strength of a randomized controlled trial design is that it allows a study to isolate the impact of a treatment by ruling out other factors, such as the predispositions of participants and the character of the settings, that may affect the outcomes. This allows the researchers to make causal connections. We review this study separately, and at a greater length, because of its size and importance and because it evaluated the impact of induction on all three sets of outcomes: beginning teachers' retention, classroom practices, and student achievement.

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<sup>2</sup> This 3 year project released an initial design report (Glazerman, Senesky, Seftor, & Johnson, 2006), annual reports of results after years one and two (Glazerman et al., 2008; Isenberg et al., 2009) and a final overall report (Glazerman et al., 2010).

This study collected data from 1,009 beginning teachers in 418 schools in 17 large, urban, low-income, public school districts. The sampled teachers were followed for three years, beginning in the 2005-2006 school year. Teachers' classroom practices were measured via classroom observations conducted in the spring of the first year – 2006. Data on teacher retention were collected via surveys administered in the fall of 2006, 2007, and 2008. Student achievement test scores were collected from district administrative records for the 2005-06, 2006-07, and 2007-08 school years. This study randomly assigned the 418 schools to either the treatment or control conditions, allowing for all new teachers in a school to be in the same group.

Beginning teachers in the treatment schools received “comprehensive” induction for either one or two years through programs offered by either Educational Testing Service (ETS) or the New Teacher Center, Santa Cruz (NTC). The programs included weekly meetings with a full-time mentor who received ongoing training and materials, monthly professional development sessions, opportunities to observe veteran teachers, and continuing evaluation of the teachers' practices. Beginning teachers in the control schools — those not assigned to receive comprehensive induction services — by default received the support normally offered to novice teachers by the district or school. The research design sought to ensure that the two teacher groups were balanced by race, gender, age, training, grade level, and certification.

The study's findings were mixed. For classroom practices, there were no significant differences between teachers in the treatment and control groups at mid point in their first year on the job – the study did not assess impacts on practices past teachers' first year. For teacher retention, there were no significant differences between those in the treatment and control groups after each of the three years of follow-up. For student achievement, there were no differences between teachers in the treatment and control groups after either of the first two years. However,

the study found that there were significant differences in the achievement of students of the teachers in the treatment and control groups in the 3<sup>rd</sup> year, based on the sample of teachers whose students had both pre-test and post-test scores. These impacts were equivalent to moving the average student from the 50th percentile to the 54th percentile in reading and to the 58th percentile in math. In other words, the study found that after two years of receiving comprehensive induction, the scores of students taught by such teachers significantly improved.

These results raise interesting questions. Some of the findings in the study seem inconsistent with other findings in the study. Some of the findings seem consistent with findings in other studies, and some of the findings appear to contradict those of other studies. Given the size and importance of this study and its mixed findings it is worth examining the study's characteristics, strengths and limits in some detail, below. Later in the Conclusion we return to the apparent consistencies and inconsistencies of findings within this study, and between this study and others, and try to summarize common ground and reconcile differences.

### ***Differences Between Treatment and Control Groups***

One issue concerns the degree, clarity and consistency of differences between the treatment and control groups. The study documented that the intensity of induction support was greater in all aspects for the treatment group than for the control group, at a statistically significant level. This satisfies the starting assumption that the teachers in the treatment group were, in fact, receiving support that was more comprehensive than the baseline in the control group. But, one of the key findings of the study was that induction and support are common, even in districts that supposedly did not have formal comprehensive programs. This is consistent with many of the earlier reviewed studies showing that induction is widespread. Moreover, this includes high-poverty schools, such as those sampled for this study. As reviewed earlier, an

analysis of national data by Ingersoll & Smith (2004b) revealed that teachers in high-poverty schools are at least as likely as, if not more likely than, their counterparts in low-poverty schools to report they receive and participate in induction and mentoring.

As a result, as the authors carefully indicate, this study was not a comparison of those participating in induction with those not participating in induction. Nor was this study a comparison of those receiving formal induction with those only participating in some manner of informal induction. It was a comparison of teachers in schools that implemented a new “comprehensive” treatment based on two programs (from Educational Testing Service or from the New Teacher Center), with schools that, for the most part, had formal induction programs already in place. Hence, this was not a study of the effects of getting induction per se, but a study of whether one type of induction – comprehensive – had different and better effects than the prevailing type of induction offered. This kind of comparison poses challenges and has implications for detecting effects.

The sampling design called for selecting districts in which the prevailing induction programs were not intensive, formal, or comprehensive. This would allow a distinct comparison when a subsample of schools in these districts then received the treatment of comprehensive induction. To obtain information on the the degree of prevailing induction, the study interviewed district administrators and superintendents. One possible weakness with this approach is that it assumes that all schools in a district provide similar levels of induction to teachers, and moreover, assumes district-level officials are aware of the programs in particular district schools. However, individual school principals within a district could utilize school discretionary funds for the provision of a variety of supports, such as in-school mentors, orientation, professional development, release time, professional learning communities – resulting in within-district,

cross-school variations in induction. And, district officials may not be aware of these school-based efforts.

The study's descriptive data obtained from teachers reveal a different picture than that obtained from district officials. The data from teachers showed that, for some induction components, the control group support was not, in fact, greatly different from that provided to the treatment group. For example, 83 percent of control teachers reported having a mentor, compared to 94 percent of the treatment group. The ideal, of course, would be 100 percent participation by the treatment group, and far less by the control group. Likewise, average time spent with a mentor during the most recent teaching week was about 1.5 hours for the treatment group and about 1.25 hours for the control group. The average time spent one-on-one with a mentor was about .5 hour versus .2 hour, respectively. The average time observing and modeling lessons was 11 and 7 minutes, respectively.

Our point here is that if some of the control schools had induction services for beginning teachers that met, or came close to, the study's definition of comprehensive induction, it muddies the comparison between treatment and control groups and raises the possibility of Type II errors – acceptance of a null hypothesis of no differences in outcomes, that, in fact, is false. As a result, this kind of study could become the equivalent of a medical study that compares the effects of a specific dosage of a particular brand of aspirin with the effects of a variety of dosages of whatever other anti-pain medication the control group patients might have around the house, some of which could be similar to aspirin.

Variability within the treatment group also posed challenges. The comprehensive induction provided in the treatment group sought to closely follow the standard programs offered by Educational Testing Service and the New Teacher Center, but in some ways may have

differed. For example, the mentors in the treatment group, while mostly having had prior mentoring experience, were all new to the two programs, while mentors in the study's control group were most likely working within a familiar program. Mentors' familiarity and experience with a program could be an important factor in success.

Variable participation in the treatment programs also occurred because not all teachers attended the five or six professional development sessions that were offered. Of those teachers enrolled in the Educational Testing Service program, only 20% attended at least four of the five professional development sessions. Almost one third were present at two or fewer sessions. Likewise, of those enrolled in the New Teacher Center program, only 23% attended at least five of the six monthly sessions and 22% missed at least three of the sessions. Participation in sessions was not mandatory and it is unclear if non-participation was due to a lack of motivation, a lack of confidence in the treatment, or problems with the implementation or provision of the treatment. Of course, ultimately, non-participation in a treatment has the same result as participation in an ineffective treatment. In both cases the treatment is not found to be successful. However, it is also worth understanding the reasons why a treatment was not successful. Non-participation in an otherwise effective treatment has different implications than participation in an otherwise ineffective treatment. To again use the above aspirin analogy, this could become the equivalent of a medical study that seeks to assess the effect of a specific dosage of aspirin, finds no effect, but also discovers that some of the subjects took less than the specified dose of aspirin. It is unclear if the lack of effect is due to not taking the full amount of aspirin, or due to the aspirin's ineffectiveness.

This lack of clarity surrounding the degree and consistency of differences between the treatment and control groups has implications for the findings. On the one hand, one might not



expect to find large detectable differences in the outcomes for the treatment and control groups. On the other hand, it is striking that despite these issues, the study did find after two years significant differences in student achievement for those teachers getting comprehensive induction, compared to those getting the prevailing induction. In any event, it could have been the case that induction for both the treatment and control groups had a positive effect compared to getting no induction at all, but the study could not determine this because all got some induction.

### ***The Measure of Teachers' Classroom Practices***

A second issue concerns the outcome measure of teachers' actual classroom practices. Conducting and evaluating classroom observations of teachers in the field can be time-consuming, laborious, and expensive. As a result, such research often focuses on small samples. One important strength of this study is its relatively large teacher sample (1,009). But, perhaps as a result of the large sample, this study used a relatively limited number, of relatively short, classroom observations of teachers done only in their first year of the study. Teachers were observed once during one reading/language arts lesson, in late spring during their first year of teaching, that is, after six or seven months of treatment.

Regardless of how valid and reliable the observation instrument (the *Vermont Classroom Observation Tool*), it is unclear whether a single, relatively short classroom observation is sufficient to accurately characterize an individual's teaching strategies and classroom management, or whether it is likely to detect differences between treatment and control teachers after about half an academic year. It is unfortunate that the study was not able to conduct multiple observations, especially including followup observations in the teachers' second and third years. This limits the ability of the study to discern later impacts and, in turn, what can be

concluded regarding whether comprehensive induction affects teachers' practices more than the default induction. It could be the case that the effects of comprehensive induction did not differ from those of the prevailing induction, or it could be the case that, like the delayed impact of induction the study found on student achievement, it would take more than one half year of participating in comprehensive induction before such teachers' instructional techniques would markedly improve over those getting the existing induction.

### *Generalizability*

A third issue concerns external validity and the issue of generalizability. The study focused on large, urban, public school districts that had 50 percent or more students enrolled in the federal free/reduced lunch program for students from low-income families. From this group, the study included only districts for which district administrators reported low levels of existing induction, and that were willing and able to participate, resulting in a sample of 17 districts.

Large, urban, low-income school districts are the target of much attention and reform and it is important to learn if induction can have a positive impact in such schools. But it is also important to recognize that the study sample was not representative of districts, schools or teachers in the U.S., or of the subpopulation of large, urban, low-income school districts in the U.S. This limits the ability to generalize from the study — it is unclear whether the results of comprehensive induction found in the study's small sample of public school districts would hold true in other settings — a point to which we will return in the Conclusion.

In sum, the major advantage of a randomized controlled trial design is that it addresses threats to internal validity and allows the study to isolate the impact of a treatment and discern causal connections. However, it is unclear whether the advantages of the randomized design to detect impacts in this study haven't been partly undermined by other factors. Lack of full

participation in the treatment by a portion of the treatment group, considerable levels of treatment experienced by teachers in the control group, limits in the outcome measure of teachers' classroom practices, and a non-representative sample all pose possible limits to identifying differences in the effects of comprehensive induction compared to those of the prevailing induction, and what we can conclude from this study's findings on these effects.

### **Conclusions and Implications for Research**

For decades researchers and commentators have called attention to the difficulties encountered by newcomers to elementary and secondary teaching, the lack of support provided to struggling novices, and their high levels of attrition during the first few years on the job (e.g., Lortie ,1975; Tyack, 1974; Sizer, 1992; Johnson, 1990; Johnson & Birkeland 2003). Not all teacher attrition is, of course, negative; an early departure of a low-caliber teacher can be beneficial for the teacher, the students and the school. But there is a growing consensus that high levels of teacher attrition, especially among beginners, are not cost free. Teachers are an important resource, their production, training and recruitment all entail costs, and the performance of newcomers is not as high as that of veterans. As a result, in recent decades a growing number of states, school districts and schools have developed and implemented induction programs for beginning teachers. The objective of these support programs is to improve the performance and retention of beginning teachers, that is, to enhance, and prevent the loss of, investments in teacher's human capital. In turn, there has been a growing body of empirical research designed to evaluate the effectiveness of these induction programs. The objective of this review is to critically evaluate this body of research.

As we have tried to point out in some detail, all of the studies reviewed have limitations and weaknesses of one sort or another. Despite these individual limits, however, the evidence

collectively points in a similar direction. Overall, the studies we have reviewed provide empirical support for the claim that induction for beginning teachers, and teacher mentoring programs in particular, have a positive impact. Almost all of the studies we reviewed showed that beginning teachers who participated in some kind of induction had higher satisfaction, commitment or retention. Likewise, for teachers' classroom practices, most of the studies reviewed showed that beginning teachers who participated in some kind of induction performed better at various aspects of teaching, such as keeping students on task, developing workable lesson plans, using effective student questioning practices, adjusting classroom activities to meet students' interests, maintaining a positive classroom atmosphere, and demonstrating successful classroom management. Finally, for student achievement, almost all of the studies reviewed showed that students of beginning teachers who participated in some kind of induction had higher scores, or gains, on academic achievement tests.

The major exception to this overall trend was the ambitious, large and important randomized controlled trial conducted by Glazerman and colleagues (2010). The results of this study were more mixed than most. This study did find that, after beginning teachers had experienced two years of induction, there were significant differences between the treatment and control groups in the achievement of their students. However, it also found no differences, between the teachers in the treatment and control groups, in their classroom practices in the first year and in their retention over several years. The study could not tell us whether the treatment and the control induction both had positive effects, or both had no effects on practices and retention, but simply that there were no significant differences in their effects on two of three outcomes.

These mixed findings themselves are puzzling and seemingly contradict one another. Furthermore, finding a lack of effects on retention and classroom practices appears to sharply contradict most of the other studies we reviewed on those outcomes. This is significant because, in general, the research community views the results from randomized controlled trials as more reliable and valid than findings derived from other research designs (Riehl, 2006).

To further both research and policy it is, however, also important for us to not simply ignore conflicts among findings, but to try to provide explanations to reconcile contradictory findings, and also suggest future research needed to test such hypotheses.

One possible explanation for the conflicting findings regarding the effects of induction on beginning teachers' instructional practices could lie in differences in the duration of induction. The Glazerman et al. study (2010) found that it took time – at least two years of comprehensive induction – for differences in effects to show up in students' test scores. However, to examine the impact on their classroom practices, the beginning teachers in the sample were observed only once in the spring semester during their first year of teaching.

Notably, the five other studies on the effects of induction on classroom teaching practices all undertook multiple and lengthier classroom observations of each teacher in the study. Moreover, the largest of these five other studies observed the treatment group after they received induction for two years. Four of these five studies detected positive effects on teachers' practices; the fifth study had ambiguous findings. Hence, one explanation for the lack of effect on practices is that, like gains in student test scores, it could be the case that it takes more than a half year of participating in comprehensive induction before teachers' daily instructional practices would visibly and consistently differ from those of teachers getting the prevailing induction. This is consistent with the theory and rationale behind one of the comprehensive

induction programs utilized in the Glazerman et al. study – the program offered by New Teacher Center. This model holds that on-the-job development of beginners takes more than one year and hence, beginning teachers in its program are required to receive two years of support (Moir et al. 2009).

Another possible explanation for the inconsistent findings regarding the effects of induction, especially on retention, lies in external validity — the issue of generalizability. Limits to the generalizability of findings from randomized controlled trials have been a point of debate in other fields. For instance, in medical research, there has long been discussion among practicing physicians concerning the limits of results from clinical trials, because patients in the field may differ from those enrolled in particular trials, and trials may focus on population-level effects that are, by definition, overall averages (Chalmers, 1981; Riehl, 2006). The study by Glazerman and colleagues intentionally sampled large, urban, public school districts that had a majority of students from families below the federal poverty line. While some of the other studies we reviewed similarly and solely focused on teachers in large, urban, low-income public school districts (e.g., Rockoff, 2008; Kapadia et al., 2007), most of the studies we reviewed did not. It is unclear whether the absence of effects of comprehensive induction on teachers’ practices and retention found in the Glazerman et al. study’s sample of large, urban, public school districts would hold true in other types of districts.

That the effects of induction on retention vary by setting is borne out by Ingersoll & Smith’s (2004b) disaggregated analysis of national data. Their initial analysis of a national sample found that induction had strong positive effects on teacher retention (2004a). However, their follow-up analyses found that the impact of induction differed by school poverty level, with very strong effects in low-poverty schools and no effects in high-poverty schools (2004b). This

latter finding is consistent with the findings in the study by Glazerman and colleagues. The Ingersoll & Smith data suggest that context matters, and that induction's efficacy may depend on the school setting. Their hypothesis is that induction is not a panacea and that, alone, may not be sufficient to reduce the high levels of teacher turnover that normally exist in many urban, low-income, public schools. In other words, one explanation for the inconsistent findings regarding teacher retention is that while induction could, after a couple of years, positively impact teachers' practices and student achievement in high-poverty, urban public schools, nevertheless, getting comprehensive induction, as opposed to the prevailing induction, alone, may not be able to persuade teachers to stay in such schools at significantly higher rates.

This discussion on reconciling inconsistent findings and our review in general, together suggest gaps in the research base and relevant questions that have not been addressed and warrant further research. We conclude by summarizing some of these below.

### ***The Content of Induction***

Much of the existing empirical research on the effects of induction is a-theoretical; it examines what works, but not why or why not. A better marriage between the theory behind teacher development and the empirical research could advance our understanding. Future research could begin to clarify and sort out which elements, supports and kinds of assistance are best and why. For instance, what should be the balance between induction focused on acquiring pedagogical skill versus that focused on subject-matter content?

Moreover, most of the existing research is uncritical as to the outcomes examined. While the research has focused on an important set of outcomes (teacher commitment/retention, teacher classroom practices and student achievement), these do not exhaust the possible outcomes of induction. There are multiple and competing definitions of the goals of schooling, and hence,

also multiple and competing definitions of the “effective” teacher. Definitions of the latter range from those teachers most able to engage students in higher order and critical inquiry, to those most effective at raising mature citizens, to those most sensitive to student diversity, to those most caring of children, to those best at promoting students’ social and behavioral development, to those effective at raising student test scores. It is convenient to assume that the “good” teacher is effective at most of the above tasks. But this may not be true. Indeed, coping with multiple and competing tasks has long been recognized as a central challenge for schools and teachers (Bidwell 1965). Recent research suggests that teachers who are good at promoting some of the goals of education are not necessarily good at promoting other goals (see, e.g., Jennings 2010). Hence, it is important to ask which definition of the effective teacher is the goal for a particular induction program and if there are tough trade-offs. For instance, can an induction program simultaneously promote teachers’ skill in engaging students in higher order inquiry, while also promoting teachers’ ability to teach standardized test taking, or are these contradictory imperatives calling for completely different induction emphases?

### ***The Duration and Intensity of Induction***

Both theory and some of the evidence suggest that the quantity of induction is important. That is, programs that are more comprehensive, or longer, or include more depth of support appear to be better. It is unclear, however, how long or intense induction programs need to be. Is there a minimal “tipping point” or threshold, below which induction is of little value? On the other hand, is there an optimum program length and intensity for induction and mentoring programs, beyond which additional time invested diminishes in value? More specifically, is there an optimal quantity for particular components and activities. For instance, is there a



significant difference in effectiveness depending upon the amount of contact between new teachers and their mentors? Again, there is a role for theory in guiding the empirical research.

### ***The Relative Costs and Benefits of Induction***

Along with content and duration, induction programs also vary in their financial costs and along with the question of which kinds and amounts of assistance are most effective, is the question of which kinds and amounts of assistance are most cost effective. Especially in periods of budget shortfalls, the “bang for buck” of such programs is, of course, crucial information to policymakers faced with decisions about which of many competing programs to fund. This is an area for which the research community could provide useful guidance to the policy community, but this is also an area for which there has been almost no empirical work done (for an exception, see Villar & Strong, 2007).

### ***The Impact of Context***

Existing research suggests that the content, duration and costs of induction programs vary greatly among states, school districts and schools. It is unclear, however, the extent to which the effects of, and the cost effectiveness of, induction vary by setting. Are the content and duration of effective induction similar across settings? Or, does induction need to be tailored to settings to be effective? Does effective induction in urban, low-income, public schools necessarily differ from effective induction in suburban, affluent schools? Are some types and components of induction better for some types of teachers and students than for others? Does effective induction at the high school level differ from that at the elementary level? Moreover, are induction and mentoring programs particularly helpful for new teachers whose formal preparation is relatively weak, or are they helpful regardless of the quality of pre-classroom preparation? Future research could illuminate these issues.

## References

- Aaronson, D; Barrow, L & Sander, W. (2007). Teachers and student achievement in the Chicago public high schools. *Journal of Labor Economics* 25, no 1: 95 – 135.
- Achinstein, B., Ogawa, R. T., Sexton, D., & Freitas, C. (2010). Retaining teachers of color: A pressing problem and a potential strategy for “hard-to-staff” schools. *Review of Educational Research*, 80(1), 71–107.
- Bidwell, Charles. (1965). “The School as a Formal Organization.” *Handbook of Organizations*, ed. J. March. pp. 973-1002. Chicago: Rand McNally.
- Boyd, D.; Lankford, H. & Loeb, S. (2008). The narrowing gap in New York City teacher qualifications and its implications for student achievement in high-poverty schools. Working Paper no. 14021, Cambridge, MA: National Bureau of Economic Research.
- Bradley, L., & Gordon, S. P. (1994). Comparing the ideal to the real in state-mandated teacher induction programs. *Journal of Staff Development*, 15(3), 44-48.
- Britton, E., Paine, L. Raizen, S., & Pimm, D. (2003). *Comprehensive teacher induction: Systems for early career learning*. Kluwer Academic Publishers and WestEd.
- Chalmers, T. (1981). The clinical trial. *Milbank Memorial Fund Quarterly*, 59(3), 324-339.
- Cohen, B., & Fuller, E. (2006). Effects of mentoring and induction on beginning teacher retention. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Charles A. Dana Center. (2001). *Texas beginning educator support system: Evaluation report for year one 1999-2000*. Retrieved from [www.utdanacenter.org/downloads/products/txbess99\\_00.pdf](http://www.utdanacenter.org/downloads/products/txbess99_00.pdf)

Dalton, D.R., Todor, W.D., & Krackhardt, D.M. (1982, Jan.) Turnover overstated: The functional taxonomy. *The Academy of Management Review*, 7(1), 117-123.

\* Davis, B., & Higdon, K. (2008). The effects of mentoring /induction support on beginning teachers. *Journal of Research in Childhood Education*, 22(3), 261-274.

\* Duke, L., Karson, A., & Wheeler, J. (2006). Do mentoring and induction programs have greater benefits for teachers who lack preservice training? *Journal of Public and International Affairs*, 17(2), 61-82.

Education Week. (2008). *Quality counts*. Arlington, VA: Editorial Projects in Education

\* Evertson, C. M., & Smithey, M. W. (2000). Mentoring effects on protégés' classroom practice: An experimental field study. *Journal of Educational Research*, 93(5), 294-304.

Feiman-Nemser, S. (2001). From preparation to practice: Designing a continuum to strengthen and sustain teaching. *Teachers College Record*, 103(6), 1013-55.

Feiman-Nemser, S., & Schulle, S. (1999). *A conceptual review of literature on new teacher induction*. Washington, DC: National Partnership for Excellence and Accountability in Teaching.

Fideler, E., & Haselkorn, D. (1999). *Learning the ropes: Urban teacher induction programs and practices in the United States*. Belmont, MA: Recruiting New Teachers.

\*Fletcher, S. H., 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.

\*Fletcher, S. H., & Strong, M. (2009). Full-release and site-based mentoring of elementary grade new teachers: An analysis of changes in student achievement. *The New Educator*, 5(4), 329-341.

- \*Fuller, E. (2003). Beginning teacher retention rates for TxBESS and non-TxBESS teachers. Austin, TX: State Board for Educator Certification. Unpublished document.
- Ganser, T. (1994). The perceptions of school principals about a mentoring program for newly hired urban school teachers. *Educator*, 30(2), 13-23.
- Ganser, T. (1996). What do mentors say about mentoring? *Journal of Staff Development*, 17(3), 36-39.
- Ganser, T. (2002). The new teacher mentors: Four trends that are changing the look of mentoring programs for new teachers. *American School Board Journal*, 189(12), 25-27.
- \*Glazerman, S., Senesky, S., Seftor, N., & Johnson, A. (2006). *Design of an impact evaluation of teacher induction programs* (Final Report No. 6137— 070). Washington, DC: Mathematica Policy Research, Inc. Retrieved from [www.mathematica-mpr.com/publications/PDFs/designimpact.pdf](http://www.mathematica-mpr.com/publications/PDFs/designimpact.pdf)
- \*Glazerman, S., Dolfin, S., Bleeker, M., Johnson, A., Isenberg, E., Lugo-Gil, J. ... Ali, M. (2008). *Impacts of comprehensive teacher induction: Results from the first year of a randomized controlled study*. NCEE 2009-4034. Washington, DC: U.S. Department Of Education.
- \*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: U.S. Department Of Education.
- Gold, Y. (1999). Beginning teacher support. In J. Sikula, T. Buttery, & E. Guyton (Eds.), *Handbook of research in teacher education* (2nd ed.) (pp. 548-594). New York, NY; Macmillan.

- Gregson, J. A., & Piper, J. W. (1993). The Ohio induction process: Perceptions of beginning secondary school trade and industrial teachers. *Journal of Industrial Teacher Education*, 30(2), 30-43.
- Grissmer, D., & Kirby, S. (1987). *Teacher attrition: The uphill climb to staff the nation's schools*. Santa Monica, CA: Rand Corporation.
- Grissmer, D., & Kirby, S. (1992). *Patterns of attrition among Indiana teachers, 1965-1987*. Santa Monica, CA: Rand Corporation.
- Grissmer, D., & Kirby, S. (1997). Teacher turnover and teacher quality. *Teachers College Record*, 99, 45-56.
- Hafner, A., & Owings, J. (1991). *Careers in teaching: Following members of the high school class of 1972 in and out of teaching*. Washington, DC: National Center for Educational Statistics.
- \*Hahs-Vaughn, D., & Scherff, L. (2008). Beginning English teacher attrition, mobility, and retention. *The Journal of Experimental Education*, 77(1), 21-53.
- Hegstad, C. D. (1999). Formal mentoring as a strategy for human resource development: A review of research. *Human Resource Development Quarterly*, 10(4), 383-90.
- \*Henke, R. R., Chen, X., & Geis, S. (2000). *Progress through the teacher pipeline: 1992-93 College graduates and elementary/secondary school teaching as of 1997*. Washington, DC: National Center for Educational Statistics.
- Hobson, A. J. Ashby, P., Malderez, A., & Tomlinson, P. D. (2009). Mentoring beginning teachers: What we know and what we don't. *Teaching and Teacher Education*, 25, 207-216.

- Ingall, C. K. (2006). *Down the up staircase: Tales of teaching in Jewish day schools*. New York, NY: Jewish Theological Seminary Press.
- Ingersoll, R. (2001). Teacher turnover and teacher shortages: An organizational analysis. *American Educational Research Journal*, 38(3), 499-534.
- Ingersoll, R., & Kralik, J. (2004). *The impact of mentoring on teacher retention: What the research says*. Denver, CO: Education Commission of the States.
- Ingersoll, R., & Merrill, L. (2010). Who's teaching our children? *Educational Leadership*, 67(8), 14-20.
- Ingersoll, R., & Perda, D. (2010a). Is the supply of mathematics and science teachers sufficient? *American Educational Research Journal*, 47(3), 563-595.
- Ingersoll, R., & Perda, D. (2010b). *How high is teacher turnover and is it a problem?* Consortium for Policy Research in Education, University of Pennsylvania.
- \*Ingersoll, R., & Smith, T. (2004a). Do teacher induction and mentoring matter? *NASSP Bulletin*, 88(638), 28-40, doi:10.1177/019263650408863803.
- \*Ingersoll, R., & Smith, T. (2004b). The impact of induction and mentoring on beginning teacher turnover in high and low poverty schools. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA (2004).
- \*Isenberg, E., Glazerman, S., Bleeker, M., Johnson, A., Lugo-Gil, J., Grider, M., and Dolfen, S. (2009). *Impacts of comprehensive teacher induction: Results from the second year of a randomized controlled study* (NCEE 2009-4072). Washington, DC: U.S. Department of Education.

- Jennings, J. (2010). Beyond High-Stakes Tests: Teacher Effects on other Educational Outcomes. Chapter 3 in *Understanding Teacher Effects*. Edited by Sean Kelly. New York: Teachers' College Press.
- Johnson, S. (1990). *Teachers at work: Achieving success in our schools*. New York, NY: Basic Books.
- Johnson, S., & Birkeland, S. (2003). Pursuing a sense of success: New teachers explain their career decisions. *American Educational Research Journal*, 40(3), 581-617
- Kane, T.J.; Rockoff, J.E. & Staiger, D.O. (2006). What does certification tell us about teacher effectiveness? Evidence from New York City. Working Paper no. 12155, National Bureau of Economic Research, Cambridge, MA
- \*Kapadia, K., Coca, C., & Easton, J. Q. (2007). *Keeping new teachers: A first look at the influences of induction in the Chicago Public Schools*. Chicago, IL: Consortium on Chicago School Research. Retrieved from [http://ccsr.uchicago.edu/publications/keeping\\_new\\_teachers012407.pdf](http://ccsr.uchicago.edu/publications/keeping_new_teachers012407.pdf)
- Kyle, D. W., Moore, G. H., & Sanders, J. L. (1999). The role of the mentor teacher: Insights, challenges, and implications. *Peabody Journal of Education*, 74(3&4), 109-22.
- Leithwood, K., & Jantzi, D. (2009). A review of empirical evidence about school size effects: A policy perspective. *Review of Educational Research*, 79(1), 464-490.
- Lortie, D. (1975). *Schoolteacher: A sociological study*. Chicago, IL: University of Chicago Press.
- Mobley, W. (1982). *Employee turnover: Causes, consequences and control*. Reading, MA: Addison-Wesley.

- Mitchell, D., & Scott, L. (1998). *The California beginning teacher support and assessment program. 1998 statewide evaluation study*. Riverside, CA: California Educational Research Cooperative, Graduate School of Education, University of California, Riverside.
- Moir, E., Barlin, D., Gless, J & Miles, J. 2009. *New Teacher Mentoring*. Cambridge, MA: Harvard Education Press.
- Murnane, Richard, Singer, Judith, Willett, John, Kemple, J., Olsen, R. (1991). *Who will teach?: Policies that matter*. Cambridge, MA: Harvard University Press.
- Perez, K., Swain, C., & Hartsough, C. S. (1997). An analysis of practices used to support new teachers. *Teacher Education Quarterly*, 24(2), 41-52.
- Price, J. (1977). *The study of turnover*. Ames, IA: Iowa State University Press.
- Price, J. (1989). The impact of turnover on the organization. *Work and Occupations*, 16, 461-473.
- Riehl, C. (2006). Feeling better: A comparison of medical research and education research. *Educational Researcher*, 35(5), 24-29.
- \*Rockoff, J. E. (2008). *Does mentoring reduce turnover and improve skills of new employees? Evidence from teachers in New York City*. Working Paper 13868, Cambridge, MA: NBER. Retrieved from: <http://www.nber.org/papers/w13868>.
- \*Roehrig, A. D., Bohn, C. M., Turner, J. E., & Pressley, M. (2008). Mentoring beginning primary teachers for exemplary teaching practices. *Teaching and Teacher Education*, 24(3), 684-702.



- Schaffer, E., Stringfield, S., & Wolfe, D. (1992). An innovative beginning teacher induction program: A two-year analysis of classroom interactions. *Journal of Teacher Education*, 43(3), 181-92.
- Scherer, M. (Ed.) (1999). *A better beginning: Supporting and mentoring new teachers*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Serpell, Z., & Bozeman, L. (1999). *Beginning teacher induction: A report on beginning teacher effectiveness and retention*. Washington, DC: National Partnership for Excellence and Accountability in Teaching. Retrieved from [www.ericcsp.org/pages/digests/BeginningTeacherInduction.htm](http://www.ericcsp.org/pages/digests/BeginningTeacherInduction.htm).
- Sizer, T. (1992). *Horace's compromise: The dilemma of the American high school*. Boston, MA: Houghton Mifflin.
- \*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.
- \*Stanulis, R. N., & Floden, R. E. (2009). Intensive mentoring as a way to help beginning teachers develop balanced instruction. *Journal of Teacher Education*, 60(2), 112-122.
- Strong, M. (2009). *Effective teacher induction and mentoring: Assessing the evidence*. New York, NY: Teachers College Press.
- Stroot, S. A., Fowlkes, J., Langholz, J., Paxton, S., Stedman, P., Steffes, L., & Valtman, A. (1999). Impact of a collaborative peer assistance and review model on entry-year teachers in a large urban school setting. *Journal of Teacher Education*, 50(1), 27-41.
- \*Thompson, M., Paek, P., Goe, L., & Ponte, E. (2004). Study of the impact of the California formative assessment and support system for teachers; Report 2: Relationship of

- BTSA/CFASST engagement and teacher practices. ETS-RR-04-31. Washington, DC: Educational Testing Service.
- Tyack, D. (1974). *The one best system*. Cambridge, MA: Harvard University Press.
- 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.
- Villeme, M. G., Hall, B. W., Burley, W. W., & Brockmeier, L. (1992). Are teachers receiving adequate support from their beginning teacher programs? The Florida experience. *Teacher Educator*, 28(2), 10-16.
- Waller, W. (1932) *The sociology of teaching*. New York, NY: Wiley.
- Wang, J., & Odell, S. J. (2002). Mentored learning to teach according to standard-based reform: A critical review. *Review of Educational Research*, 72(3), 481-546.
- Wang, J., Odell, S.J., & Schwille, S.A. (2008). Effects of teacher induction on beginning teachers' teaching: A critical review of the literature. *Journal of Teacher Education*, 59(2), 132-152.
- Wang, J., Odell, S. & Clift, R. (Eds.) (2010). *Past, present, and future research on teacher induction: An anthology for researchers, policy makers, and practitioners*. Lanham, MD: Rowman and Littlefield Education and the Association of Teacher Educators.
- Wilson, S., Darling-Hammond, L. & Berry, B. (2001). *A case of successful teaching policy: Connecticut's long-term efforts to improve teaching and learning*. Seattle, WA: Center for the Study of Teaching and Policy.
- Wollman-Bonilla, J. E. (1997). Mentoring as a two-way street. *Journal of Staff Development*, 18(3), 50-52.

Youngs, P. (2007). District induction policy and new teachers' experiences: an examination of local policy implementation in Connecticut. *Teachers College Record*, 109(4), 797-837.

Zey, Michael G. (1984). *The mentor connection*. Homewood, IL: Dow Jones-Irwin.

Table 1

*15 Studies of the Effects of Induction (marked with asterisks in Reference section)*

Effects of Induction on Beginning Teacher Commitment and Retention			
1. Kapadia et al., 2007			
Overview	Data	Outcomes	Findings
<p>Evaluated district-wide induction programs in Chicago Public Schools for 2005.</p> <p>Looked at data from 1,737 novice teachers (72% of all 1- to 2-year teachers).</p> <p>Identified weak, average, and strong intensity of induction.</p>	<p>Teacher questionnaires.</p>	<p>How positive was first year; intentions to stay in teaching and/or in same school.</p>	<p>Strong induction showed significantly higher scores in all three outcomes.</p> <p>No induction showed no difference from induction.</p>

2. Fuller, 2003; Cohen & Fuller, 2006

Overview	Data	Outcome	Findings
Evaluation of TxBESS from 1999-2003, a statewide program to provide support for beginning teachers, of which mentoring was a major component.	Annual questionnaire to mentees; state database on teacher retention.	Teacher retention compared with other teachers in the state.	TxBESS teachers were retained at significantly higher rates over first three years compared to other teachers in the state.

3. Henke, 2000

Overview	Data	Outcome	Findings
Secondary analysis of Baccalaureate and Beyond survey that followed a nationally representative sample of 7,294 college graduates who entered teaching after 1992-93 school year. Follow-ups in 1994/1997.	Survey that included one yes/no question about induction.	Attrition	Significantly lower attrition (15% versus 26%) for beginning teachers who participated in induction program.

4. Smith & Ingersoll, 2004; Ingersoll & Smith, 2004a; Ingersoll & Smith, 2004b

Overview	Data	Outcome	Findings
<p>Secondary analysis of nationally representative sample from the Schools and Staffing Survey and Teacher Follow-up Survey of 3,235 first-year teachers in 1999-2000 school year.</p>	<p>Mailed Questionnaire.</p>	<p>Attrition after first year.</p>	<p>Significantly lower attrition for teachers having different types of induction supports such as: a helpful mentor in the same subject area or participation in collaborative activities with other teachers.</p> <p>No decrease in attrition for teachers receiving a reduced teaching load, or a teacher aide in the first year.</p>

5. Hahs-Vaughn & Scherff, 2008

Overview	Data	Outcomes	Findings
Secondary analysis of subsample of English teachers from the 1999-2000 Schools and Staffing Survey	Mailed questionnaire.	Individual/ school characteristics on attrition, mobility, and retention.	No effects for induction. But authors failed to limit analysis to first-year teachers, therefore results problematic.

6. Duke et al., 2006

Overview	Data	Outcomes	Findings
Secondary analysis of 1999-2000 Schools and Staffing Survey.	Mailed questionnaire.	Amount of induction; teacher intentions to stay.	Induction had positive effect on teacher intentions to stay. BUT, authors failed to limit analysis to first-year teachers, therefore results problematic.

Effects of Teacher Induction on Beginning Teachers' Classroom Practices

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7. Evertson & Smithey, 2000

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Overview	Data	Outcome	Findings
<p>Compared the effects of having trained versus untrained mentors.</p> <p>Randomly assigned 46 teachers to each group.</p>	<p>Classroom observations.</p>	<p>Classroom practice.</p>	<p>Teachers with trained mentors had better classroom organization and management early in the year, and students were more engaged.</p>

8. Roehrig et al., 2008

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Overview	Data	Outcome	Findings
<p>Case studies of six novice teachers and their mentors.</p>	<p>Surveys, observations using AIMS instrument and interviews.</p>	<p>Classroom practice</p>	<p>Ambiguous findings. Both more and less effective teachers declined in use of effective practices over the year.</p>



9. Davis & Higdon, 2008

Overview	Data	Outcome	Findings
Two groups of five teachers were studied, one group had a university-supplied mentor as well as district support, the other group had district support only.	Two half-day observations in fall and spring. Survey looked at mentor support.	Classroom practice.	School/university induction partnerships “may” contribute to teacher effectiveness.

10. Stanulis & Floden, 2009

Overview	Data	Outcome	Findings
Two matched groups of 12 beginning teachers. Treatment group had intensive mentoring supplied by university, comparison group had district only support.	Classroom observation early and late in year using AIMS instrument.	Classroom practice	Experimental group showed gains in AIMS scores over year that were greater than the comparison group.

Effects of Teacher Induction on Student Achievement

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11. Thompson et al., 2004

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Overview	Data	Outcomes	Findings
Studied California BTSA program among 1125 third-fifth grade teachers from 107 school districts during their third teaching year.	Survey of all teachers, interviews and observations of sub-sample.	Engagement in BTSA and teaching practice; student achievement	Found high engagement in BTSA was associated with higher scores on most measures of teaching practice. Students of teachers with higher engagement had higher test scores.

12. Fletcher et al., 2008

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Overview	Data	Outcomes	Findings
Compared beginning teachers from three California school districts with different levels of BTSA induction support.	Student test data; school district data; induction program data.	Student achievement gains.	Found teachers in the most intensive induction program had greater gains in reading. Also, teachers in the intensive program showed class gains equal to those of experienced teachers in the same district.

13. Fletcher & Strong, 2009

Overview	Data	Outcome	Findings
Compared two groups of beginning teachers in an urban school district: those with full-time mentors and those with part-time mentors. All mentors had the same training.	Student test data; district data; induction program data.	Student achievement gains.	Teachers supported by full-time mentors showed greater achievement gains over one year than those with part-time mentors.

14. Rockoff, 2008

Overview	Data	Outcome	Findings
Studied the effects of a comprehensive mentoring program provided by the Santa Cruz New Teacher Center on teachers in New York City in 2004.	Survey and other data from the mentoring program; payroll data; NY DOE survey; standardized test data.	In-school retention; teacher self-report on effectiveness; student achievement.	Retention a function of previous experience in that school; teachers claimed mentoring impacted teaching; more time with mentor showed higher achievement in math and reading.

15. Mathematica Policy Associates (four reports): Glazerman et al., 2006; Glazerman et al., 2008; Isenberg et al., 2009; Glazerman et al., 2010

Overview	Data	Outcomes	Findings
<p>Randomized control study of comprehensive induction support (adapted from two prominent induction programs) versus standard district support. Recruited 17 large school districts with at least 50% low income students. Initial sample of 1,009 teachers. Sub-sample followed for a second year. Some analysis after three years.</p>	<p>Observation, interview, questionnaire, and student test data. Outside agency monitored treatment implementation.</p>	<p>Intensity of induction support; teacher retention; teacher practice; student achievement</p>	<p>Treatment group received significantly more intensive induction support; no effects on retention, practice, or student achievement after one year; no effects on retention or achievement after two years; student achievement of treatment teachers significantly higher after three years (for small subsample).</p>

## *Appendix D*

### *NTC Induction Program Standards*

This document may be ordered on the New Teacher Center website at <http://www.newteachercenter.org/products-and-resources/inductionprogram-resource/induction-program-standards>.

## *Appendix E*

### *Colorado Interview Protocol*

## **COLORADO INTERVIEW PROTOCOL**

*Hi. My name is \_\_\_\_\_. Thank you for taking the time to talk with me.*

*The New Teacher Center is conducting a study of induction programs in your state as a contractor for the Colorado Department of Education (CDE). Our review of induction program plans on file at the CDE identified your program as one of the stronger models in the state.*

*This interview should take about 45 minutes to an hour.*

*The purpose of the study is to learn more about the induction program offered in your district, determine how closely it adheres to the program plan on file with the state, and identify common and exemplary program practices across the state of Colorado. [Acknowledge in relevant cases the length of time between plan approval and the current year.]*

*This study is in no way meant to evaluate you or your program.*

*As we talk I am going to take notes, but can have your permission to record this interview in case I miss anything as I am taking notes? I can turn the tape off at any time at your request.*

*Your consent will indicate that you have a clear understanding of what is expected during this project. Do you agree to speak with us for the purpose of our study?*

*[Wait for affirmative verbal response.]*

### **Program Plan**

- (1) Have you had a chance to review the induction plan we sent you that is on file at the CDE?
- (2) Are you familiar with this specific plan? Were you involved in writing it?
- (3) Is this plan the current one utilized locally, or do you use an updated or entirely different plan?
- (4) The date of the last state approval of your induction program plan is [DATE]. Is that accurate or are you aware of a most recent state program approval?

### Program Duration/Funding

- (1) Confirm program length.
  - Are there any significant differences in the supports provided to first-year vs. second-year teachers/administrators?
- (2) Confirm provision for extension of induction program, if applicable.
  - How often, if at all, is this provision utilized?
- (3) How is the induction program funded?
  - Are local sources of funding utilized? Federal Title II funds?
  - What is the amount of program funding (in total and/or on a per BT basis)?
- (4) Are mentors compensated? [Confirm amount – or ask.]
- (5) How many BTs does the program currently serve? How many mentors does the program currently employ?
- (6) Other specific questions, based on re-review of plan.

### Foundational Program Elements

- (1) What is the fundamental vision of your induction program?
- (2) Inquire about allocation of time for induction program activities. If no specific information, inquire specifically about BT/mentor release time, minimum number of/frequency of/length of mentoring meetings, etc.
  - Does the program provide 30 hours of one-on-one mentoring time per BT?
- (3) Is there a dedicated program director?
  - Full time? Part time? Get individual's title.
- (4) Incorporate question/inquiry re: teaching conditions/TELL data here
- (5) How is the induction program connected to/integrated with the local educator evaluation system?
- (6) How is the induction program assessed or evaluated?
  - Measureable objectives identified?
  - Multiple data sources – implementation and impact?
  - Used to inform program improvement?
  - Frequency: Annually? Every five years?
- (7) Other specific questions, based on re-review of plan, including specific inquiry about any program elements rated a “2”



### Structural Program Elements

- (1) Inquire about mentor recruitment and/or selection processes.
  - How does the program recruit mentors?
  - What are the selection criteria used by the program?
- (2) When are BT-mentor assignments made? Prior to school year?
- (3) What factors determine BT-mentor matches?
- (4) Describe the foundational training provided to mentors.
- (5) Do mentors receive on-going development and support? If so, describe.
- (6) Are mentors provided release time from teaching duties? Does the program employ part-time or full-time mentors?
- (7) Are mentors involved in or firewalled from evaluations of beginning educators?
- (8) Describe any structures, systems or tools (formative assessment system) utilized to develop beginning educator practice and accelerate BT growth.
  - What guidance does the program provide around mentors' observations of BTs?
  - What guidance does the program provide around mentors' consultation with BTs?
- (9) Describe process/criteria to determine successful induction program completion.
- (10) Do BTs and/or mentors participate in learning communities of any kind?
- (11) Other specific questions, based on re-review of plan, including specific inquiry about any program elements rated a "2"

### Instructional Program Elements

- (1) How does the program focus on helping BTs to reflect upon/self assess teaching practice?
- (2) How does the program focus on BT usage of state teaching standards?
- (3) Other specific questions, based on re-review of plan, including specific inquiry about any program elements rated a "2"

### Summary

- (1) What would you identify as the greatest strength(s) and weakness(es) of the induction program?
- (2) In light of research and best practices, do you believe that it provides sufficient quality support to beginning educators?

### State Role

- (1) How has the state influenced the development and success of your induction program?
- (2) How would you characterize your induction programs' relationship with the state policy regarding induction? Are there aspects or elements of state policy that have helped or hindered your program?
- (3) What does your program need from the state or from state policy to achieve greater success?

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*Thank you very much for your time. Good-bye.*

ABOUT NEW TEACHER CENTER

New Teacher Center focuses on improving student learning by accelerating the effectiveness of new teachers. NTC partners with states, school districts, and policymakers to design and implement systems that create sustainable, high-quality mentoring and professional development; build leadership capacity; work to enhance teaching conditions; improve retention; and transform schools into vibrant learning communities where all students succeed.



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