Northwest Comprehensive Center
at Education Northwest

WHAT THE RESEARCH SAYS ABOUT

Class Size, Professional Development, and Recruitment, Induction, and Retention of Highly Qualified Teachers

A Compendium of the Evidence on Title II, Part A, Program–Funded Strategies

About the Northwest Comprehensive Center

The Northwest Comprehensive Center (NWCC), operated by Education Northwest, is one of the nation's 15 regional Comprehensive Centers. Funded by the U.S. Department of Education, the NWCC provides high-impact training and technical assistance to state education agencies in the Northwest states of Alaska, Idaho, Montana, Oregon, and Washington. Our work focuses on the priorities of educator effectiveness, school improvement, and Common Core State Standards implementation.

Education Northwest is a nonprofit, nonpartisan organization headquartered in Portland, Oregon, that's dedicated to transforming teaching and learning. Our services to states, districts, schools, community-based organizations, and foundations include rigorous research and evaluation; research-based technical assistance; widely acclaimed professional development; and strategic communications that maximize impact.

For more information, contact NWCC Director Mike Siebersma (Mike.Siebersma@educationnorthwest.org) and visit http://nwcc.educationnorthwest.org.

About the Author

Basha Krasnoff is a researcher at Education Northwest where her responsibilities include participation in research studies, analysis, and reporting; development of research syntheses, research briefs, and white papers; and evaluation of program implementations at the state and district levels. Contact Basha.Krasnoff@educationnorthwest.org.

Literature Search Strategies

Literature review sources, search terms, and keywords

Two sources of information were used: a systematic search of multiple databases and a search in Google Scholar.

We used a comprehensive strategy to search for qualifying studies, articles, and reports since 2007. The electronic bibliographic databases we searched included: EBSCO Professional Development Collection, Education Research Complete, ERIC, Gale's Educators Reference Complete, Google Scholar, NBER Working Paper Series, PsychInfo, and Science Direct.

Subject	Search Terms	Results*
Class Size Reduction	"class size reduction" AND ("effect"* OR "achieve"* OR "learning outcomes" OR "school improvement")	Initial result: 3,000 items Narrowed to 86 items Final: 65 items
Professional Development	("professional development" OR "professional learning" OR "teacher development") AND ("student achieve"* OR "title II" OR "effective"* OR "student outcomes") NOT ("part D" OR "math science partnership")	Initial result: 8,000+ items Narrowed to 91 items Final: 65 items
Teacher Recruitment, Retention	("teacher recruitment" OR "teacher retention" OR "teacher induction" OR "principal recruitment" OR "principal retention" OR "principal induction")	Initial result: 6,000 items Narrowed to 103 items Final: 35 items

** After the initial search, a more in-depth reading of abstracts narrowed the results. A further review of the studies yielded the final number of reports that informed our findings.*

Currently three strategies predominate to address teacher quality issues: class size reduction; professional development; and recruitment, induction, and retention of highly qualified teachers.

Review limitations

- The study was limited to a review of research obtainable through Portland State University's electronic databases and other free online databases. Books were excluded.
- The review focused on published studies and journal articles. Dissertations were excluded.
- English language only.
- Publication date after 2007.

Executive Summary

States and districts have the flexibility to creatively use Title II, Part A funds to address teacher quality issues. Currently, three strategies predominate—class size reduction, professional development, and recruitment, induction, and retention of highly qualified teachers. Each strategy is implemented with the intention of improving teaching quality and, by extension, student achievement.

To support decisions about which strategy would be most effective given organizational and structural constraints, states and districts need to consider the research evidence. This compendium comprises briefs developed from extensive literature searches, reviews, and analyses of the research evidence for each of the three common strategies. The purpose of the information presented here is to help inform states and districts as they plan their Title II, Part A, fund designations.

Class size reduction

There is no evidence that minimal or arbitrary reductions in class size will improve student performance. Across the entire range of research studies on class size reduction, however, there are a few general conclusions that can be drawn about the effects of smaller classes on student performance:

- In the primary grades, boys and girls equally benefit academically from long-term exposure to small classes
- Minority and low-income students gain particular academic and behavioral advantages that increase the longer they are exposed to smaller classes
- Gains from small classes in the primary grades are larger when class size is reduced to fewer than 15 students
- Poor instructional practice continues to yield poor academic results no matter how much the class size is reduced
- Students who have been in smaller classes throughout the primary grades retain academic gains made in multiple content areas upon return to standard-size classrooms in the upper grades

One caveat: When schools and districts designate Title II, Part A funds for class size reduction, they should also plan appropriate professional development for the teachers who will carry out the program and make necessary changes to the educational and physical contexts in which those programs will be placed.

Professional development

Professional development consists of such a broad and complex array of interrelated but disparate learning opportunities, it is difficult to measure their overall effect on teacher's knowledge and instructional practice. Research suggests that some types of professional development are effective at changing teacher instructional practices and some types of teacher practices are more effective at increasing student achievement. There is no body of research that causally links effective professional development approaches to increased student achievement.

Professional development programs are judged effective primarily because they change instructional practice in a way that seems to increase student achievement. There are certain common features of professional development that have been associated with changes in teacher knowledge, practice, and by extension, student achievement.

Professional development programs that are deemed effective share the following characteristics:

- Strong content focus on higher order, subject-matter content and the pedagogy of how students learn that content
- Active learning opportunities during the school day for teachers to get involved in inquiry-oriented, learning approaches, such as observing and receiving feedback, analyzing student work, or making presentations
- Collective participation in collaborative, learning opportunities with groups of teachers from the same grade, subject, or school to build interactive learning communities
- A consistent body of professional development activities that build the coherence of teacher knowledge, school curricula, district policy, and state reforms
- Sufficient duration and span that spreads professional development activities over the school year or semester and includes at least 20–40 hours of contact time
- Evaluation design that collects data on at least one measure of each program objective, including quality of implementation of development activities, gains in teacher knowledge, changes in classroom practices, and increases in student achievement

Teacher recruitment, induction, and retention

The recruitment, retention, and support of highly qualified teachers present three sets of intertwined challenges. Research overwhelmingly points to four broad categories related to the implementation of this strategy that states and districts must consider: organizational structures and supports; recruitment of prepared and qualified teachers; investment in induction and mentoring programs; and development of communities of

professional teachers. Investing in competitive salaries is important; however, recruiting and keeping good teachers—both novice and experienced teachers—is equally a question of attending to key working conditions that matter to them.

Consider the following:

- In addition to class size, teaching loads, and the availability of materials, factors contributing to teacher retention include teacher participation in decisionmaking, strong and supportive instructional leadership from principals, and collegial learning opportunities.
- Seeking out and hiring better prepared teachers has many payoffs and savings in the long-run, both in terms of lower attrition and higher levels of competence.
- Investing in induction and mentoring programs provides a pipeline of effective and satisfied teachers who are prepared to enter and stay in high-need schools. Considering the high costs of attrition, many of the strategic investments needed to support competent teachers in staying, such as mentoring for beginners and ongoing learning and leadership challenges for veterans, pay for themselves in large degree.
- Developing a stable, high-quality, teaching force that becomes increasingly effective creates a professional learning community that not only reduces teacher failure but also student failure.
- Building the teaching profession to ensure quality teachers and learning for each student means paying teachers more but differently by reorganizing the school structure to create a tiered teaching profession that accommodates and rewards highly accomplished teachers who can manage and lead less experienced teachers.

Contents

Introduction

The Elementary and Secondary Education Act (ESEA) Title II, Part A program provides "Improving Teacher Quality State Grants" to educational agencies implementing strategies intended to increase the academic achievement of all students. Agencies do this by helping schools and districts to improve teacher and principal quality and to ensure that all teachers are highly qualified. Nonregulatory guidance affords these agencies flexibility to use the funds creatively to address challenges to teacher quality, including:

- Teacher preparation and new teacher qualifications
- Recruitment, hiring, induction, and retention of teachers
- Professional development
- The need for more capable principals and assistant principals to serve as effective school leaders

The Title II, Part A program requires that schools and districts implement scientifically based strategies and solutions, the effectiveness of which have been proven by "research that involves the application of rigorous, systematic, and objective procedures to obtain reliable and valid knowledge relevant to education activities and programs." Washington Office of Superintendent of Public Instruction requested assistance from the Northwest Comprehensive Center at Education Northwest to develop research briefs to meet that requirement. After an extensive review of the literature, we developed the following compendium of the research base for three Title II, Part A program–funded strategies for improving teacher quality:

- Class size reduction
- Professional development
- Teacher recruitment, induction, and retention

We hope that the information presented in this compendium supports states and districts as they strategically plan their investments in Title II, Part A programs.

Class Size Reduction

The federal government has fully supported class size reduction (CSR) to improve student achievement, with funding for the initiative reaching $1.3 billion by 2000. In 2002, a class size reduction program was embedded into Title II of the No Child Left Behind Act when the Eisenhower Professional Development Grant and the Class Size Reduction Grant were consolidated into a more general teacher quality block grant program funded at $2.85 billion.

The Title II "Improving Teacher Quality" State Grant provides funding for professional development; recruiting, hiring, and training new teachers; and reducing class size. All three of these are prominent topics in K–12 school improvement and each one warrants study. Some analysts argue that no education issue would benefit more from research-based evidence than CSR. CSR is very expensive to implement and there has been much debate over whether its benefits are sufficient to offset the high costs because implementing CSR often precludes investing in other improvement strategies (Council of Chief State School Officers, Research and Development, 2012).

A popular strategy

CSR is a very attractive educational improvement strategy and popular with parents and educators alike. Parents believe that smaller classes mean greater attention to individual student's needs leading to better student learning. Teachers believe that smaller classes are more manageable and allow time for thoughtful reflection on instructional practice, which they assume will lead to higher achievement. By 2005, approximately half of the states had either mandated or provided incentives to reduce class size in public schools despite

Speculations on the Benefits of Class Size Reduction

- Higher morale and less teacher stress
- Reduced teacher workloads
- More individualized attention for students
- Increased student and teacher interaction/ communication
- Higher levels of student participation
- More time on task or greater opportunity to learn
- Lower student retention rates
- Increased parent and teacher interaction/ communication

scant evidence of its effectiveness (Chingos, 2011). By 2010, all but 15 states had laws restricting the number of students that may be included in a general education classroom in some or all grades (Sparks, 2010).

CSR studies have always produced somewhat ambiguous results. When critics challenged CSR, however, it wasn't because they had no effect on student achievement but rather, they weren't considered the best use of educational funds (Sparks, 2010). Despite this concern about cost effectiveness, smaller class size remained a popular concept. According to a 2007 survey conducted by the American Federation of Teachers, parents considered class size second in importance only to school safety (Dillon, 2011). One national poll found that 77 percent of Americans would rather spend educational dollars on class size reduction than on higher teacher salaries (Chingos, 2011).

With the economic downturn beginning in 2008, however, many states and districts began to consider that their investment in CSR might be too costly in times of economic uncertainty. Consequently, 19 states relaxed or eliminated their class size laws or policies. Policymakers and researchers began to turn away from straight CSR to other methods of increasing individual instruction time, such as restructured class formats, coteaching, and distance learning. Federal policy has also begun to deemphasize class size reduction as an across-the-board policy. According to data from the American Association of School Administrators, 62 percent of districts in 2010/11 claimed they would increase class sizes, compared to 26 percent in 2009/10, and only 9 percent in 2008/09 (Ellerson, 2010).

Quality of available research

States and districts are searching for evidence of sufficient effectiveness of CSR policies to offset the expense of implementation. There are hundreds of studies, articles, and briefs on the topic. According to the Brookings Institute Brown Center on Education Policy, there are three categories of credible studies of CSR (Chingos & Whitehurst, 2011):

- Randomized experiments, in which students and teachers are randomly assigned to smaller or larger classes
- Natural experiments in which, for example, a sudden change in class size policy allowed a before-and-after analysis of its effects
- Sophisticated mathematical models for estimating effects that take advantage of longitudinal data on individual students, teachers, and schools.

Meta-analyses of the large array of existing studies suggest that research supports all possible standpoints: That CSR improves student performance, that CSR can either improve performance or have no effect, and that CSR has absolutely no effect on student performance. With these conflicting study outcomes, there are mixed opinions on whether class size has any discernible effect on student achievement and whether discernible benefits outweigh the costs of implementation. There is one conclusion that research on the topic of CSR can agree on: There is no reason to expect consistent improved student performance under a CSR policy.

Unfortunately, the body of research on the impact of CSR on student achievement has been highly criticized on the basis of flawed methodologies and results challenged as unreliable. The most common failing of such research is disregard for the impact of

other student variables on student achievement, such as income level. Also problematic is the lack of research comparing CSR directly to other interventions, in order to determine which strategy is *more* effective.

"Credible" study results

There are only three high-quality, research-based studies that have actually investigated the impact of smaller classes on student performance. The first two have historical significance because much of what is currently believed about CSR originated with them: the STAR study in Tennessee and the SAGE program in Wisconsin. The third study, the California CSR program study, provided many lessons for proponents of current and future programs (Romanik, 2010).

Tennessee STAR

The most influential and credible study of CSR initiatives is the Student/Teacher Achievement Ratio (STAR), conducted between 1985 and 1989 and involving 79 elementary schools. Project STAR is frequently cited as a landmark study in CSR research and is credited with much of the national push in CSR. Project STAR is unique for being both large-scale and randomized—two characteristics that are considered the gold standard in social science research.

This study randomly assigned students to kindergarten classes so that some were enrolled in regular classes composed of 22–26 students and others went into small classes of 13–17 students. Students remained in these class configurations through third grade. When studied in grade 3, students in the smaller classes saw larger test scores gains in reading and mathematics compared to those in larger classes. This effect was most noticeable for minorities and low-income students. These benefits were reported to extend into the upper elementary grades. The advantage of CSR appeared greater (nearly double) for African American students compared to nonminority students. Poor and minority students appeared to reap the greatest learning gains in smaller classes. Classroom behavior was judged better for students enrolled in small classes, and these students were more likely to take college entrance exams during high school. Follow-up studies through the years found the students who had been in small classes earlier had better academic and personal outcomes throughout their school years and beyond (Krueger & Whitmore, 2001; Sparks, 2010).

STAR has been recognized as demonstrating some of the largest CSR impacts: Students gained the equivalent of three additional months of schooling four years after their classes were reduced by 7–10 students. It is important to note that in order to see the benefit, class sizes must fall to 15 students or fewer, compared to an average class size of 24 students. Most research agrees that slight class size reductions bear no measurable benefit for students (Achilles, 2012).

Wisconsin SAGE

The Student Achievement Guarantee in Education (SAGE) program in Wisconsin began in 1996. This study did not use randomization of students into regular and small classes but rather matched control and experimental schools. Variables used to match schools included family income, reading achievement, size, and racial composition. The CSR intervention started in first grade and continued as students advanced to grades 2 and 3.

The program continued for five years through 2001/02. Students were tested in May and again in October each year using the Terra Nova Comprehensive Test of Basic Skills. Results indicated that students in classes with approximately 15 students outperformed those in classes composed of approximately 30 students in mathematics and language arts each year the program was in existence. Researchers found higher achievement for children living in poverty. They also suggested that it would be difficult to replicate these results without including key elements of that program, such as early intervention and small class sizes for three years or more (Achilles, 2003).

California CSR

California's CSR program, the first large-scale, state-operated effort, was initiated during a time of plentiful state funding (Bullwinkle & Gaylor, 2002). It is actually not an experiment but rather a program with provisions for evaluation. CSR was introduced in kindergarten through third grade during fall 1996 and limited participating classrooms to 20 students. Initially, the state awarded districts $650 to $850 per student and facility grants of $25,000 to $40,000 per school to reach the reduced class size. During 1997/98 or the second year of operation, 1.6 million students were enrolled in small classes at an annual cost of $1.5 billion (Witte, 2000). Over the lifetime of the reform, the state has spent an estimated $22 billion in direct subsidies to districts participating in the program. This funding is in addition to billions of dollars spent by individual school districts in order to cover the costs of the reform (Freedberg & Cabrera, 2009).

A study of the program during 1998/99 included 432 California schools and found, in general, no difference on Stanford Achievement Test scores between groups of students who had participated in smaller classes and those enrolled in regular sized classes. Although the program has been very popular among teachers, parents, and students, it has resulted in relatively small positive achievement gains among K–3 students.

Policy considerations

According to Biddle and Berliner (2002), attention to class size is a timely and appropriate focus for education policy. Reducing class size makes intuitive sense: Decreasing the teacher-student ratio should increase teacher-student interaction, which together should increase student learning. And, some research indicates that smaller classes are good for learning and for behavior. But, research does not point to a straightforward relationship between decreasing class size and increasing student achievement. Rather, research suggests that there are many intervening factors that influence the outcome of implementing a CSR policy. There is a picture emerging that suggests the following:

- **Targeted population:** If minority and low-income students in the primary grades benefit the most academically and behaviorally from CSR policies, then funding considerations should be given to hiring well-trained and enthusiastic teachers and creating additional classroom space to accommodate smaller classes for this group.
- **Teaching skills:** New teachers and experienced teachers alike will need support to learn teaching strategies that optimize the benefit of a smaller classroom configuration. No intervention, including smaller classes, can succeed without good teaching practice.

In order for smaller classes to pay real dividends, both new and veteran teachers will need support in adopting teaching strategies that take advantage of the class size reductions.

- **Physical space:** Schools have only so much physical space. Dividing classrooms in half, using broom closets, and other makeshift accommodations are inadequate for obtaining optimal results of smaller class sizes. Proper facilities are a major consideration for implementing smaller classes.
- **Flexibility:** Any new policies that are instituted to reduce class size must be flexible enough to keep the focus on improved learning. Funds must be used to accommodate specific needs of specific students in specific schools and to engage the community in the planning process.
- **Expanding research base:** Rigorous research and evaluation of each CSR implementation will contribute to the success of subsequent implementations that are built on previous experience.

Theories about why small classes produce positive effects follow two lines of thought. Most theorists have focused on the teacher and have reasoned that small classes produce positive effects in student achievement because interactions between the teacher and individual students are improved in the small-class context. The theory suggests limits for the extra gains one should expect from small classes in the early grades. Clearly,

students are likely to learn more and develop better attitudes toward education if they are exposed to well-trained and enthusiastic teachers, appropriate and challenging curricula, and physical environments in their classrooms and schools that support learning. If conditions such as these are not also present, then to reduce class size in the early grades will presumably have little impact. Thus, when planning programs for reducing class size, states and districts should also plan for the professional development of teachers who will participate in smaller classes and provide appropriate environments in which those programs will take place.

Summary of findings

While individual studies have not offered conclusive evidence, the entire range of studies suggests a number of general conclusions about the effects of smaller classes on student performance:

- Long-term exposure to small classes in the primary grades is advantageous to all students, boys and girls equally
- Small classes in the primary grades offer particular academic and behavioral advantages to minority and low-income students whose gains increase the longer they are exposed to smaller classes
- Academic gains from small classes in the primary grades are larger when class size is reduced to fewer than 15 students
- Academic gains from small classes in the primary grades are found in multiple academic subjects using both traditional student achievement measures and various other indicators of student success
- Academic gains from small classes in the primary grades are retained when students return to standard-size classes in the upper grades and the gains continue through middle school and high school
- Evidence of academic improvement from smaller classes in middle school and high school has been inconclusive

Lessons learned

Researchers agree that shrinking the number of students in a class does not automatically translate into better learning. Teachers also need to alter their teaching practices to optimize the advantage of having fewer students. And, while the studies that found positive effects from CSR have focused on efforts that reduce classes to 16 or so students, the costs are prohibitive. Consequently, states have tended to reduce classes by only a few students. One concern surrounding various states' efforts to shrink class sizes is that the press for quantity will come at the expense of quality, forcing schools and districts to hire underqualified or unprepared teachers: a lesson that California learned firsthand with its CSR program. In the first year of its implementation, more than one fifth of the teachers hired had only emergency credentials. The schools serving poor and minority students were hit hardest as qualified teachers with full credentials and seniority left to take jobs at "less difficult" schools.

Offering an economist's view of class size research, Krueger (2000) maintains that there are significant advantages to be realized by maintaining small (<15) classes in the early grades, and that CSR would have a definite positive impact if targeted toward those populations shown to benefit from it, particularly students in high-poverty districts.

Krueger also notes that no commentators reach the conclusion that *increasing* class sizes will lead to improved student performance, save for possibly in the very upper grades of secondary schooling. However, participation in moderately sized classes (20–25 students) has not been shown to detrimentally affect students in and of itself. In fact, it is argued that students suffer the effects of a large class only when class sizes reach the 30s, just as reduction in size does not necessarily bring positive outcomes unless the number of students drops to 15 or fewer. Krueger's analysis concludes that reducing class sizes from the 30s to the 20s is in the right direction, but there is little support for the claim that there are increases in achievement or satisfaction, or teacher attitude or morale. Only when the class size reduces to 15 or fewer are there appreciable benefits.

References

Achilles, C.M. (2003). *How class size makes a difference: What the research says. The impact of class-size reduction (CSR).* Paper presented at the SERVE Research and Policy Symposium on Class-Size Reduction and Beyond, Raleigh, NC.

Achilles C.M. (2012). *Class-size policy: The STAR experiment and related class size studies* [Policy brief]. Retrieved from ERIC database. (ED540485)

Biddle, B.J., & Berliner, D.C. (2002). Small class size and its effects. *Educational Leadership, 59*(5), 12–23.

Bullwinkle, M., & Gaylor, A. (2002, June 27). *Evidence inconclusive that California's class size reduction program improves student achievement* [Press release]. Retrieved from CSR Research Consortium website: http://www.classize.org/press/index-02.htm

Chingos, M.M. (2011). *The false promise of class-size reduction.* Retrieved from Center for American Progress website: http://www.americanprogress.org/issues/education/report/2011/04/14/9526/the-false-promise-of-class-size-reduction/

Chingos, M.M., & Whitehurst, G.J. (2011). *Class size: What research says and what it means for state policy.* Retrieved from Brookings Institution website: http://www.brookings.edu/research/papers/2-11/05/11-class-size-whitehurst-chingos

Council of Chief State School Officers, Research and Development. (2012). *Chiefs' pocket guide to class size: A synthesis of current and historical class size research literature for use by Chief State School Officers and state education agency staff.* Retrieved from http://www.ccsso.org/Resources/Publications/Class_Size_Research_Synthesis.html

Dillon, S. (2011, March 6). Tight budgets mean squeeze in classrooms. *The New York Times,* A1. Retrieved from http://www.nytimes.com/2011/03/07/education/07classrooms.html?pagewanted=all

Ellerson, N.M. (2010). *A cliff hanger: How American's public schools continue to feel the impact of the economic downturn.* Retrieved from American Association of School Administrators website: https://www.aasa.org/uploadedFiles/Policy_and_Advocacy/files/CliffHangerFINAL(1).pdf

Freedberg, L., & Cabrera, H. (2009, November 19). Despite state subsidies, class sizes begin to rise again in California schools. *California Watch.* Retrieved from http://californiawatch.org/k-12/despite-state-subsidies-class-sizes-begin-rise-again-california-schools

Krueger, A.B. (2000). *Economic considerations and class size* (Working Paper No. 447). Retrieved from Princeton University, DataSpace website: http://dataspace.princeton.edu/jspui/bitstream/88435/dsp019z902z86c/1/447.pdf

Krueger, A.B., & Whitmore, D.M. (2001). *Would smaller classes help close the Black-White achievement gap?* (Working Paper No. 451). Retrieved from Princeton University, DataSpace website: http://dataspace.princeton.edu/jspui/bitstream/88435/dsp01w66343627/1/451.pdf

Romanik, D. (2010). *What the research tells us: Class size reduction* (Information Capsule No. 1001). Retrieved from ERIC database. (ED536518)

Sparks, S.D. (2010, December 1). Class sizes show signs of growing. *Education Week, 30*(13), pp. 1, 16. Retrieved from http://www.edweek.org/ew/articles/2010/11/24/13size_ep.h30.html

Witte, J.F. (2000). Reducing class size in public schools: Cost-benefit issues and implications. In S.W.M. Laine & J.G. Ward (Eds.), *Using what we know: A review of the research on implementing class size reduction initiatives for state and local policymakers* (pp. 5–20). Retrieved from ERIC database. (ED456554)

Professional Development

> *In the history of education there has never before been a greater recognition of the importance of professional development. Every modern proposal to reform, restructure, or transform schools emphasizes professional development as a primary vehicle in efforts to bring about needed change. With this increased recognition has come increased scrutiny. Questions are being raised about the effectiveness of all forms of professional development in education. And with these questions have come increased demands for demonstrable results …. What evidence is there to show they are effective? (Guskey, 1995, p. 1)*

If it is true that "we make time for what we value," then it is ironic that teachers, in particular, struggle with finding time to learn to be better teachers. Although research tells us that effective professional development is vital to school success and teacher satisfaction, the most prevalent approach used for decades, the ubiquitous "sit and git topic du jour" workshop model has been summarily dismissed by administrators and teachers alike for its vague applicability to real contexts, lack of measurable effectiveness, and poor return on the investment of time and resources.

Beginning in the 1990s, qualitative literature began to support a roughly consistent alternative model: For teacher learning to truly matter, it must take place in a more active and coherent intellectual environment where ideas are exchanged and explicit connections made to the bigger picture of school improvement.

In 2008, the National Staff Development Council (now Learning Forward) and a team of researchers from the Stanford Center for Opportunity Policy in Education (SCOPE) launched a three-part *Status of Professional Learning* research study conducted by Darling-Hammond, Wei, and their colleagues to measure the effectiveness of professional learning in the United States. These researchers drew on a variety of sources, including reviews of mainly qualitative literature, research on teacher learning in developed countries, teacher surveys conducted by the Learning Forward group, data from the annual MetLife Survey of the American Teacher, and data from three

administrations of the federal Schools and Staffing Survey. Findings, released in three successive phases through 2012, provide the most up-to-date descriptive information on professional development trends in the United States.

The first phase study (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009) found that U.S. teachers generally spent more time instructing students and less time in professional learning opportunities with their peers than teachers in top-performing countries. The second phase research (Wei, Darling-Hammond, & Adamson, 2010) found that the United States is making some progress in providing increased support and mentoring for new teachers. However, the study also revealed that teachers have fewer opportunities for the kind of ongoing, intensive professional learning that research shows has a substantial impact on student learning.

During a keynote speech at the Staff Development Council Conference in 2008, Darling-Hammond emphasized that good professional development "is not a mystery. What is a mystery is how to get policy to support this kind of [teacher] learning routinely … so that it can become the norm, not the exception." She acknowledged that it is no small feat changing school schedules and teacher working hours. She also was quick to point out that it is not hard to imagine why districts favor "spray-and-pray" professional development workshops even if they know they aren't particularly effective, given that they are easier and generally cheaper than reorganizing school schedules, extending the school day, or hiring additional staff to free up the common time for this type of professional development. Subsequent years of the study guided by other researchers examined policy frameworks supporting high levels of professional development activities. Key findings from these later stages indicate that sustaining focus is vital, collegiality is not enough, and leadership is the key element.

Some districts, schools, and teachers are designing, implementing, and experiencing several popular models for site-based professional development that matured during the 2000s. These professional development activities include the ever-evolving models of professional learning communities (PLCs), also known as "inquiry teams" or "learning teams." Basically, teachers in either grade-level or content-area teams meet several times a week as PLCs to collaborate on teaching strategies and solve problems. In the most sophisticated examples, teachers set common instructional goals, teach lessons in their individual classrooms, administer informal assessments to determine levels of student mastery, and then regroup as a team to analyze the data together. Then, they pinpoint areas of success, identify areas for improvement, and set goals for future teaching (Honawar, 2008).

Such practices are being paired with other opportunities for deepening practice, including observing fellow teachers and working one-on-one with classroom-based "coaches" or content experts. To provide enough time for teachers to work together effectively, such models frequently require schools to overhaul their schedules or arrange for a delayed start time (Keller, 2007). Other variations of site-based professional development include the practice of lesson study, in which a team of teachers develops a lesson that one of the teachers then teaches. The lesson is observed and sometimes videotaped so that colleagues can analyze the lesson's strengths and weaknesses and determine how to strengthen the lesson (Viadero, 2004).

With the current onslaught of requirements to measure teacher and principal effectiveness in increasing student outcomes, the concept of professional development has been extended beyond classroom practices to include formal teacher induction, the

credits or degrees teachers earn as part of recertification or to receive salary boosts, the national board certification process, and participation in subject-matter associations or informal networks (Sawchuk, 2010).

Effective professional development: Where are the data?

> *If the United States is truly serious about helping every student succeed, we will invest in research-based professional development programs that get us there, and we'll have the patience [to implement them faithfully]. (Van Roekel, 2013)*

Hard data about which professional development models lead to better teaching are difficult to come by. An analysis of 13 different lists of characteristics of effective professional development drawn from the leading organizations in the field show that all the analysts derived their outcomes in very different ways, used different criteria to determine "effectiveness," and varied widely in the characteristics they identified. The research evidence regarding most of the identified characteristics was inconsistent and sometimes contradictory (Guskey, 2003).

In essence, professional development relies on a two-part transfer of knowledge: Teachers must internalize new knowledge and skills sufficiently to change their behavior and those changes in teacher behavior must subsequently result in improved student mastery of the subject matter. It is the complex nature of those transactions that makes the effectiveness of professional development activities so challenging to study. As a result, much of the research conducted on professional development continues to be descriptive rather than quantitative (Sawchuk, 2010).

Today, quantitative research on the impact of professional development remains comparatively thin. A 2007 review of more than 1,300 studies on professional development conducted by researchers at the American Institutes for Research found only nine studies of professional development programs that met rigorous scientific standards set by the What Works Clearinghouse, the arm of the federal Institute of Education Sciences that reviews experimental research on program impact. The study found that effective programs were characterized by an average of 49 hours of training but the study's authors cautioned against extrapolating the findings given the varying aims of the programs studied and the small sample sizes of participants in each program (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007).

Two federally funded, randomized, field studies of intensive professional development programs, however, found no effects on student achievement, even though the programs were generally aligned with the features outlined in the 2007 review. In the first study, two professional development approaches based on a popular early-reading program increased teachers' knowledge of literacy development in the year of the intervention and in their use of explicit reading instruction, but had little effect on achievement among second-graders in high-poverty schools (Garet et al., 2008).

A second study looking at a secondary math professional development initiative found that it yielded significant changes in teachers' instructional practice, but (with one small exception) did not improve teacher knowledge of rational numbers or have any impact on middle school students' understanding of rational numbers (Garet et al., 2011).

Researchers have analyzed large sets of annual student data, prevalent since No Child Left Behind, to determine whether teachers with specific professional development experiences get larger gains for their students than other teachers. Looking across annual data from Florida between 1999/2000 and 2004/05, one such study found inconsistent, but generally positive if small, correlations between content-focused, in-service credits in math and middle school students' achievement in that subject (Harris & Sass, 2011).

Only a handful of studies have quantitatively examined the newer, site-based approaches to professional development. One study (Gallimore, Ermeling, Saunders, & Goldenberg, 2009) concluded that students in schools whose teacher learning teams relied on a set of formal protocols for guiding meetings improved more than those in a comparison group of schools where that structure was lacking. Researchers suggest that these findings are more likely when teams are teaching similar content, led by a trained peer-facilitator, use an inquiry-focused protocol, and have stable settings in which to engage in continuous improvement. While this 5-year, prospective study of nine Title I schools relied on a quasi-experimental methodology rather than a randomized experiment, its findings offer a promising avenue for future research.

A recently released study, the 2012 MetLife Survey of American Teachers, showed that although teacher morale is down across the United States, those educators expressing higher job satisfaction had one particular trait in common: They were more likely to have benefitted from effective professional development opportunities and collaborative time with fellow teachers. Researchers reported that in schools where professional learning is centered around job-embedded collaboration with a focus on student results, teachers feel less isolated and experience a greater sense of confidence and job satisfaction—basically, the antithesis of the type of professional development that occurs outside the school, away from actual instruction, and away from students (Markow, Macia, & Lee, 2013).

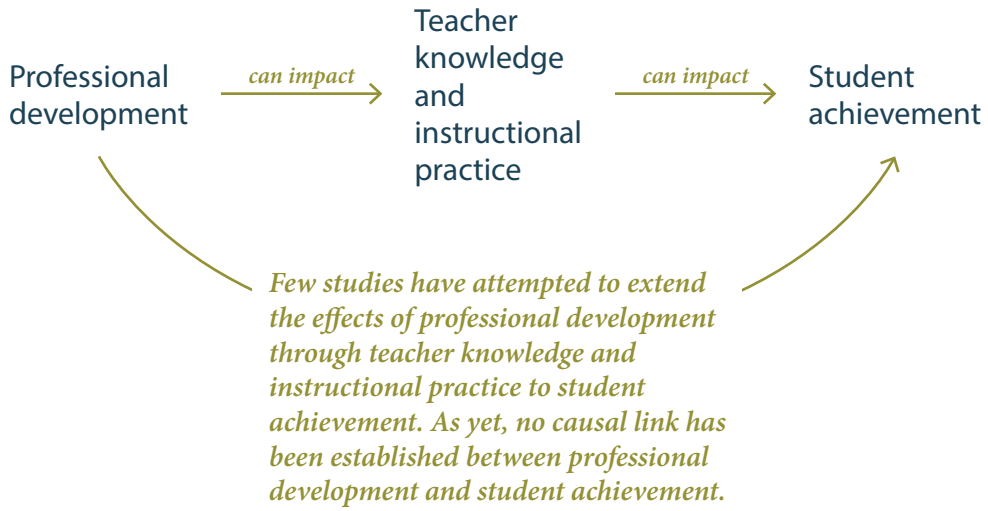
There is tremendous pressure to gain high-quality instructional practices through fidelity of implementation of evidence-based practices (Mindich & Lieberman, 2012). While funding is pouring into initiatives that emphasize measurement and improvement of teacher performance, there is no stockpile of effective teacher professional development and training approaches from which states and districts can choose. To see any return on this vast investment, state and district superintendents, principals, school boards, and reform leaders must channel their resources into evidence-supported, professional development models (Pianta, 2011). This is important because high-quality professional development is the single most cost-effective tool available to improve the quality of teachers and increase student achievement (Cohen & Hill, 2001).

Linking professional development to teacher practice and student achievement

> *Professional development is the link between the design and implementation of education reforms and the ultimate success of reform efforts in the schools. But how do we link the effectiveness of teacher professional development with student achievement? (DeMonte, 2013)*

Teachers continually confront new challenges and are expected to refine their strategies and techniques to ensure that their students learn. From keeping pace with the newest classroom technologies, addressing classroom discipline issues, identifying and meeting the individual needs of diverse learners, and—perhaps most significantly—meeting the requirements of the Common Core State Standards, the pressures to improve student achievement are immense. Effective teaching is a learned activity. Improving the practice of teaching—learning to teach better—requires training. Experience alone will not lead directly to better instruction. The effectiveness of professional development must be rooted in the best available research and measured by its impact on student achievement, including achievement by students with disabilities and English language learners.

Until recently, researchers tended to look at either the relationship between professional development and teacher practice, or the relationship between teacher practice and student achievement (for a singular academic subject, controlling for only a limited number of covariates). Increasingly complex studies based on multilevel frameworks are attempting to capture classroom teacher effects on student achievement or district-level professional development on teacher practices within schools. But, relatively few of these studies attempt to extend the effects of professional development through teacher practices to student achievement. And, the results of those studies are inconsistent (Wallace, 2009).



A results-driven education system evaluates its success by what students actually know and are able to do (Faria & Killion, 2010). Creating a results-driven education system requires that results-driven professional development programs are judged primarily by whether they change instructional practice in a way that contributes to increased student achievement. The principal measures of a results-driven professional development program are implementation, application, and impact. A useful evaluation of a professional development program must answer these questions:

About implementation

- Did the professional development program meet the participants' needs?
- Was the professional development program of high quality?

About application

- Are the participants receiving job-embedded, reflective opportunities to assist in their application and utilization of new knowledge in an effort to improve educational practices?
- Is their application and utilization of new knowledge effective?

About impact

- What are the measurable results for students?

Analysis of existing research suggests that professional development is effective when it is sustained, comprehensive, and embedded in the school day. It suggests that professional development must incorporate peer coaching, observation, modeling, and feedback; it must also be explicitly tied to higher order content and skills to significantly impact teacher practice (Darling-Hammond et al., 2009). Until now, researchers have not been able to make strong causal statements about these factors because data have come primarily from teacher self-reports and self-selection. Current approaches to professional development research promise to go beyond these design flaws to provide conclusive evidence about the factors that make professional development effective in increasing student achievement.

Policy considerations

Given the need to improve the quality of instruction and the lack of clarity and shared knowledge about what systems and activities improve teaching, it is time to take stock of what is known about professional development; what kinds of activities are currently underway; and what will be needed going forward as reforms roll through the education system. It is critical to align ongoing professional development with the school's common focus and the district's high expectations to improve the performance of all students. Professional development offerings should be focused and informed by the research base and school/classroom-based assessments. Appropriate instructional support and resources are crucial to the fidelity of implementation of the approaches and techniques learned through professional development.

When teachers develop schoolwide goals for student learning, share collective responsibility for meeting the goals, and collaborate to achieve them, the school's capacity is strengthened and student performance is likely to improve. The best way for administrators to facilitate this process is to develop protocols and procedures for embedding teacher team collaboration into the school day and cultivate a culture of shared responsibility. They must also apply rigorous methods to study the effectiveness of these policies. Evaluation methods are fundamental in determining whether outcomes can be linked to professional development. Ensuring that professional development improves student learning begins by incorporating identified features of effective learning into teacher professional development and using appropriate tools to measure the impact on student learning.

According to Choy, Chen, and Bugarin (2006), systemwide professional development programs require structures and policies that:

- Are driven by the analysis of the differences between goals and standards for student learning and student performance
- Are part of a comprehensive change process

One recommendation for effective professional development suggests that groups of teachers from the same grade, subject, or school work together in an interactive learning community.

- Are school-based and integrated with school operations
- Involve teachers in defining their needs and developing opportunities for professional development
- Meet individual teacher's needs but are primarily collaborative
- Provide opportunities for teachers to develop theoretical understanding of the knowledge and skills learned
- Are continuous and ongoing, with follow-up and support for further learning
- Incorporate an evaluation of the effect on teaching practice and student outcomes

Summary of findings

Professional development has consisted of such a complex array of interrelated but disparate learning opportunities, it has been difficult to measure its overall effect on teacher's knowledge and instructional practice. While research has given us some insight into what types of professional development are more effective at changing teacher instructional practice and which teacher practices are more effective at increasing student achievement, no research has causally linked effective, professional development approaches to increased student learning.

There are certain common features of professional development, however, that have been associated with changes in teacher knowledge, practice, and by extension, student achievement. Research suggests that these common features are:

- Strong content focus: Professional development activities focus on higher order, subject-matter content and the pedagogy of how students learn that content.
- Active learning: Teachers have opportunities during the school day to get involved in inquiry-oriented learning approaches, such as observing and receiving feedback, analyzing student work, or making presentations, as opposed to passively sitting through lectures.
- Collective participation: Groups of teachers from the same grade, subject, or school participate in collaborative, learning opportunities so they can build an interactive learning community.
- Coherence: What teachers learn in any professional development activity is consistent with other professional development and with their knowledge; their learning maintains coherence with school curricula, district policy, and state reforms.
- Sufficient duration: Professional development activities are spread over the school year or semester and include 20–40 hours of contact time.
- Evaluation design: Data are collected on at least one measure of each program objective, including quality of implementation of development activities, gains in teacher knowledge, changes in classroom practices, and increases in student achievement.

Professional development programs are judged effective primarily because they change instructional practice in a way that contributes to increased student achievement.

Lessons learned

Providing high-quality professional development is hard work and to be effective must become a core value of the education system over time. There are no quick fixes to change and improve teacher practice. While the results of individual studies have not offered conclusive evidence, the entire range of studies suggest a number of common features of effective professional development programs. And, although researchers have not been able to make strong causal statements about these common features, recent approaches to professional development research promise to provide conclusive evidence about the factors that make professional development effective in increasing student achievement. In the meantime, there is sufficient qualitative evidence to support instituting the structures and policies that cultivate a school culture of continuous learning so that all teachers engage collaboratively in the ongoing achievement of each and every student.

References

Choy, S.P., Chen, X., & Bugarin, R. (2006). *Teacher professional development in 1999–2000: What teachers, principals, and district staff report* (Statistical Analysis Report, NCES 2006-305). Retrieved from U.S. Department of Education, National Center for Education Statistics website: http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2006305

Cohen, D.K., & Hill, H.C. (2001). *Learning policy: When state education reform works.* New Haven, CT: Yale University Press.

Darling-Hammond, L., Wei, R.C., Andree, A., Richardson, N., & Orphanos, S. (2009). *Professional learning in the learning profession: A status report on teacher development in the United States and abroad.* Retrieved from Learning Forward website: http://learningforward.org/docs/pdf/nsdcstudy2009.pdf

DeMonte, J. (2013). *High-quality professional development for teachers: Supporting teacher training to improve student learning.* Retrieved from Center for American Progress website: http://www.americanprogress.org/issues/education/report/2013/07/15/69592/high-quality-professional-development-for-teachers/

Faria, S.B., & Killion, J. (2010, July 10). *MetLife Foundation supports revision of National Staff Develop Council's Standards for Staff Development* [Press release]. Retrieved from Learning Forward website: http://learningforward.org/publications/blog-landing/press-releases/2010/07/10/metlife-foundation-supports-revision-of-national-staff-development-council-s-standards-for-staff-development

Gallimore, R., Ermeling, B.A., Saunders, W.M., & Goldenberg, C. (2009). Moving the learning of teaching closer to practice: Teacher education implications of school-based inquiry teams. *Elementary School Journal, 109*(5), 537–553.

Garet, M.S., Cronen, S., Eaton, M., Kurki, A., Ludwig, M., Jones, W. … Sztejnberg, L. (2008). *The impact of two professional development interventions on early reading instruction and achievement* (NCEE 2008-4030). Retrieved from U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance website: http://ies.ed.gov/pubsearch/pubsinfo.asp?pubid=NCEE20084034

Garet, M.S., Wayne, A.J., Stancavage, F., Taylor, J., Eaton, M., Walters, K. … Doolittle, F. (2011). *Middle school mathematics professional development impact study: Findings after the second year of implementation* (NCEE 2011-4024). Retrieved from U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance website: http://ies.ed.gov/pubsearch/pubsinfo.asp?pubid=NCEE20114024

Guskey, T.R. (1995). Results-oriented professional development: In search of the optimal mix of effective practices. In T.R. Guskey & M. Huberman (Eds.), *Professional development in education: New paradigms and practices* (pp. 114–131). New York, NY: Teachers College Press.

Guskey, T.R. (2003). What makes professional development effective? *Phi Delta Kappan, 84*(10), 748–750.

Harris, D.N., & Sass, T.R., (2011). Teacher training, teacher quality and student achievement. *Journal of Public Economics, 95*(7/8), 798–812.

Honawar, V. (2008, April 2). Working smarter by working together. *Education Week, 27*(31), 25–27.

Keller, B. (2007, December 12). Coaching teachers to help students learn. *Education Week, 27*(15), 22–24.

Markow, D., Macia, L., & Lee, H. (2013). *2012 MetLife survey of the American teacher: Challenges for school leadership.* Retrieved from Metropolitan Life Insurance Company website: https://www.metlife.com/assets/cao/foundation/MetLife-Teacher-Survey-2012.pdf

Mindich, D., & Lieberman, A. (2012). *Building a learning community: A tale of two schools.* Stanford, CA: Stanford Center for Opportunity Policy in Education.

Pianta, R.C. (2011). *Teaching children well: New evidence-based approaches to teacher professional development and training.* Retrieved from Center for American Progress website: http://www.americanprogress.org/issues/education/report/2011/11/29/10663/teaching-children-well/

Sawchuk, S. (2010, November 10). Professional development for teachers at crossroads. *Education Week, 30*(11), S2–S4.

Van Roekel, D. (2013, July). [Transcript]. Speech presented at the representative assembly of the National Education Association, Atlanta, GA. Retrieved from http://www.nea.org/grants/55963.htm

Viadero, D. (2004, February 11). In 'lesson study' sessions, teachers polish their craft. *Education Week, 23*(22), p. 8.

Wallace, M.R. (2009). Making sense of the links: Professional development, teacher practices, and student achievement. *Teachers College Record, 111*(2), 573–596.

Wei. R.C., Darling-Hammond, L., & Adamson, F. (2010). *Professional development in the United States: Trends and challenges. Phase II of a three-phase study* [Executive summary]. Retrieved from Learning Forward website: http://learningforward.org/docs/pdf/nsdc-study2010.pdf

Yoon, K.S., Duncan, T., Lee, S.W.-Y., Scarloss, B., & Shapley, K.L. (2007). *Reviewing the evidence on how teacher professional development affects student achievement: Summary* (Issues & Answers Report, REL 2007-033). Retrieved from U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southwest website: http://ies.ed.gov/ncee/edlabs/projects/project.asp?ProjectID=70

Teacher Recruitment, Induction, and Retention

It is critically important that we develop much more effective policies to attract, retain, and support the continued learning of prepared and committed teachers. When teachers have assembled the kind of training and experience that allows them to be successful with students, they constitute a valuable human resource for schools—one that needs to be treasured and supported if schools are to become and remain effective. (Darling-Hammond & Wei, 2009, p. 631)

Teacher quality and student achievement

Over the years there has been substantial evidence to suggest that among all school resources, well-prepared, expert, and experienced teachers are among the most important determinants of student achievement. Studies at the state, district, school, and individual level have found that teachers' experience, as well as their academic background, preparation for teaching, and certification status, matter for teachers' effectiveness. Because of the strong evidence about how much teacher effectiveness matters to student achievement, the No Child Left Behind Act (2002) requires that highly qualified teachers staff all schools (Darling-Hammond, 2010).

To ensure that all students have "teachers with the subject-matter knowledge and teaching skills necessary to help them achieve to high academic standards, regardless of their individual learning styles or needs," ESEA Title II, Part A (2006) provides substantial funding "to help states and districts recruit, train, reward, and retain highly qualified teachers." The law emphasizes that teachers of core academic subjects meet certain minimum requirements to be considered highly qualified: at least a bachelor's

degree, full state certification, full licensure by the state for their teaching assignment, and subject matter knowledge and teaching skill in each core academic subject assigned to teach (ESEA, 2006).

Recruiting "highly qualified" teachers

A longitudinal study of high school students in North Carolina found that students' achievement is significantly higher if they are taught by a teacher who is certified in his or her teaching field, was fully prepared upon entry, had higher scores on the teacher licensing test, graduated from a competitive college, had taught for more than two years, or was National Board Certified. While each of these traits helped make teachers more effective, the combined influence of having a teacher with most of these qualifications, as compared to having a teacher with fewer of them, was larger than the effects of race and parent education combined (Clotfelter, Ladd, & Vigdor, 2007).

The difference between the effect of having a very well-qualified teacher rather than one who was poorly qualified was larger than the effects of race and parent education combined. The achievement gap would be much reduced if low-income minority students were routinely assigned highly qualified teachers, rather than the poorly qualified teachers they most often encounter. (Clotfelter et al., 2007, p. 673)

A study of teachers in New York City found that student achievement was most enhanced by having a fully certified teacher who had graduated from a university preservice program, had a strong academic background, and had more than two years of experience. Students' achievement was hurt most by having an inexperienced teacher on a temporary license, which is the teaching profile most common in high-minority, low-income schools with ongoing teacher turnover. In combination, improvements in these qualifications reduced the gap in achievement between the schools serving the poorest and the most affluent student bodies by 25 percent (Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2008).

The requirement that schools staff all classrooms with "highly qualified teachers" has created challenges for many schools, particularly those in inner city and poor rural areas. The challenge is due neither to teacher shortages (the United States produces many more qualified teachers than are hired) nor to growing student enrollments or increasing teacher retirements. Data show that the chronic demand for new teachers is largely due to teacher turnover: teachers moving from or leaving their teaching jobs. Retaining teachers is the greatest challenge facing schools today (Alliance for Excellent Education, 2004).

Hiring practices—not a small applicant pool—seem to be at the root of the recruitment problem for some districts. When The New Teacher Project studied hiring practices in four hard-to-staff urban districts, researchers found that strategic recruitment yielded a multitude of applicants, but many of the high-quality candidates withdrew their applications before hiring decisions were made in mid- to late summer. Withdrawers had significantly higher GPAs and were 40 percent more likely to have a degree and experience in their teaching field than candidates who were eventually hired. The majority of those who withdrew subsequently cited late hiring as their reason for accepting employment elsewhere. Researchers suggested that schools work with teacher unions and partner with teacher preparation programs to streamline the hiring process to competitively post and fill their positions and to tailor compensation packages to applicant credentials (Levin & Quinn, 2003).

While applicants' acceptance decisions consider salaries being offered in other districts and in fields outside of teaching, "salary" has not been correlated to teacher "shortages" or attrition, except as it relates to excessive workloads, high-stakes testing, disruptive student behavior, poor leadership and administration within schools, and views of teaching as a temporary profession. Researchers found that even moderate salary increases are only moderately effective at increasing the candidate pool or stopping existing teacher attrition. In fact, raises of 25–40 percent would be necessary to have a significant impact. Salary levels vary significantly by district: Teachers in schools serving the largest concentrations of low-income students earn, at the top of their salary scale, one third less than teachers in higher income schools (National Commission on Teaching & America's Future [NCTAF], 1996).

Turnover and attrition

Underpaid teachers are typically underprepared and not supported as they confront lower levels of resources, poorer working conditions, and the stresses of working with students and families who have a wide range of needs. Beginning teachers are particularly vulnerable because they are more likely to be assigned low-performing students. Despite the added challenges that come with teaching students with higher needs, most beginners are given no professional support, feedback, or demonstration of what it takes to help their students succeed. The result is that new teachers are the most at risk of leaving the teaching profession. Research shows that 14 percent of new teachers leave by the end of their first year; 33 percent leave within three years of beginning teaching; and almost 50 percent leave within five years (Ingersoll, 2003). These high attrition rates mean students continually face inexperienced teachers and that schools face the higher economic costs of continually hiring and training new teachers. High turnover rates also disrupt the team-based, organizational structure and functioning of a school and interrupt the planning and implementation of a coherent, comprehensive, and unified curriculum (Guin, 2004).

Policies that address the root problems of high turnover must address the four major factors that exert strong influences on teacher entry and retention:

- Compensation
- Working conditions
- Teacher preparation
- Mentoring and support

The advantages of having highly qualified teachers are clear but it is not so clear what attracts and keeps highly qualified teachers teaching and what drives them out of schools and the profession. The burning questions challenging educators from the federal to the local level today are:

- What will increase the power of the teaching profession to recruit and retain well-prepared, experienced, accomplished, high-quality teachers?

Who's Leaving the Teaching Profession?

Research tells us that the teachers leaving the profession mostly fit this profile:

- White
- Female
- Higher measured ability
- Teaching math or science
- Teaching fewer than five years
- Near retirement

(Guarino, Santibañez, Daley, & Brewer, 2004)

- What will create a stable, expert teaching force in all kinds of schools and districts?

High turnover often links directly to teachers' sense of effectiveness. Research consistently shows that teachers often leave high-poverty, low-performing, at-risk schools because they have not been adequately prepared to teach in such challenging environments and lack much needed support from administrators (Laine, 2008). On the other hand, research shows that new recruits who have had training in specific aspects of teaching (e.g., selection and use of instructional materials, child psychology, and learning theory), who have experienced practice teaching, and who received feedback on their teaching leave the profession at half the rate of those who did not (NCTAF, 2003).

Attracting "high-quality" teachers

To attract high-quality teachers (i.e., those who are well prepared, experienced, and accomplished), research suggests that schools must match their recruitment and retention efforts to the characteristics and motivations of the teachers and teaching candidates they hope to attract. For example, one highly qualified, board-certified teacher provided some insight when he asserted that the following conditions would have to be met before he would even consider working in a high-needs school:

> *I would want to see social services for parents and children, accomplished leadership, adequate resources and facilities, and flexibility, freedom and time …. One of the single greatest factors that would convince me would be an effective administrator. The leadership of the principal has everything to do with school success [because] effective leaders are magnets for accomplished teachers …. It is amazing to me the level of attention that is being focused on teacher qualifications in hard-to-staff schools when little is done to address the sometimes appalling conditions in which teachers are forced to work and students are forced to learn …. As an accomplished teacher, my greatest fear is being assigned to a hard-to-staff school and not being given the time and the flexibility to make the changes that I believe are necessary to bring about student achievement. (Darling-Hammond, 2010, p. 21)*

Research evidence supports these "demands" and suggests that schools could recruit and retain more high-quality teachers if school leaders promoted good working conditions, including an atmosphere of collegial support, meaningful involvement in decisionmaking, and a focus on student learning. While some researchers have pointed out the mediating influence of working conditions on recruitment and retention (Murnane, Singer, Willett, Kemple, & Olsen, 1991), others have demonstrated how teacher commitment (and attrition) is moderated by powerful intervening variables related to working conditions, such as collegiality, involvement in decisionmaking, and opportunities for professional development (Rosenholtz, 1989).

The teachers' sense of self-efficacy—the personal satisfaction that comes from feeling competent to do the job well—plays a role in the decision to stay or leave for both novice and veteran teachers. A survey of 2,000 current and former teachers in California showed that teachers felt greater personal satisfaction when they believed in their own efficacy, were involved in decisionmaking, and established strong collegial relationships (Futernick, 2007).

Factors Influencing Teacher Retention

In research studies, teachers consistently identify five factors as reasons for remaining in their classrooms and schools:

- **Time to collaborate with colleagues** to plan and to participate in professional activities, which allows colleagues to learn from one another and reduces isolation
- **Job-embedded professional development** planned collaboratively with other teachers and leaders to target instructional strategies and other content immediately applicable to their practice
- **Sense of autonomy** to exercise authority in their classrooms and participate in the decisionmaking process at the school level
- **Time to interact with supportive educational leaders** in a reciprocal relationship of respect, support, and involvement in leadership opportunities
- **Opportunities to provide input regarding student learning outcomes** as part of a professional learning community where teachers question and discuss student needs, subject matter, assessments, equity and access, and generate local knowledge

(Charlton & Kritsonis, 2009–2010)

When teachers cite their many reasons for leaving their job, most involve nonsalary-related dissatisfaction. Teachers most frequently cite excessive workloads and high-stakes testing, disruptive student behavior, poor leadership and administration within schools, and views of teaching as a temporary profession. Most strategies identified in the research as cost effective and influential in convincing teachers to remain relate to improving teachers' work environment and providing professional development.

Transforming schools so that they can recruit and retain good teachers who are equipped to support strong learning requires attention to all these factors and more. Instead of emphasizing monetary bonuses to attract teachers to hard-to-staff schools, evidence directs policymakers instead to invest in the professional working conditions and supports for teacher learning that are critical to their success (Berry, 2004). While money does "sweeten the offer," both novice and experienced teachers are attracted primarily to principals who are good instructional leaders, to like-minded colleagues who are committed to the same goals, to teaching conditions and readily available, relevant instructional materials, and to learning supports that enable them to be effective (Darling-Hammond, 2010).

Developing and retaining "highly effective" teachers

Building a professional teacher corps is a process that only begins with recruiting highly qualified teachers. Once recruited, these teachers need professional development, coaching, mentoring, and other supports to develop a strong sense of their own efficacy based on high-quality teaching skills and experience. Ultimately, with these types of supports, teachers become highly effective at producing high-quality, student learning and fostering high student achievement. When school leaders and policymakers understand the reasons for teacher attrition, they develop policies that stem attrition

Educators in one exemplary elementary school meet regularly to focus on student learning: one of the conditions that contribute to teacher retention.

through better preparation, assignment, working conditions, and mentor support: all of which contributes toward the goal of ensuring qualified teachers for all students (Darling-Hammond, 2010).

Schools can enhance the beneficial effects of strong initial preparation with strong mentoring and induction programs during the first years of teaching. A number of studies have found that well-designed mentoring programs improve retention rates for new teachers. They also improve teachers' attitudes, feelings of efficacy, and instructional skills. Providing expert mentors with release time to coach beginning teachers reduced attrition by more than two thirds. Furthermore, the beginning teachers became competent more quickly than those who were forced to learn by trial and error (NCTAF, 1996).

There is much evidence that well-operated induction and mentoring programs are the best method for increasing teacher retention. In California, high-quality induction and mentoring programs reduced attrition by 26 percent in just two years (Brill & McCartney, 2008). Retention increases when effective principals are actively involved in teacher induction, providing "professional socialization" in the form of frequent discussion, monitoring, and feedback. In schools where there is a climate that sets high expectations for student learning combined with the belief that all students can learn, beginning teachers express loyalty to, and the intention to stay, in a particular school because the

mission, vision, and values of the school culture match their own. However, there is also compelling evidence that socializing new teachers into an ineffective school promulgates ineffective practices and produces internal conflicts for new teachers (Angelle, 2006).

A well-researched approach—comprehensive induction—is a combination of mentoring, professional development, support, and formal assessments for new teachers during at least their first two years of teaching. Studies show that comprehensive induction programs cut attrition rates in half and even more importantly, help to develop novice teachers into high-quality professionals who really impact student achievement. Most researchers and education experts agree that, in general, new teachers require from three to seven years in the field to reach proficiency and maximize student performance. Economists have reported that investing in comprehensive induction can create a payoff of $1.37 for every $1.00 invested (Villar, 2004).

A comprehensive induction program developed and operated by the New Teacher Center was designed to break the cycle of inequity and provide children who are most in need of a quality education with teachers capable of helping them. This approach to induction provides one-to-one mentoring sessions, during which an exemplary teacher helps a novice teacher to analyze her practice and uses classroom data to offer constructive suggestions for improvement. Mentors help new teachers set professional goals, plan lessons, analyze student work, and reflect on their progress. They may team-teach or model lessons while the new teacher observes.

Over two decades of experience, the New Teacher Center learned many lessons about the efficacy of new teacher induction and mentoring (Moir, 2009). Ellen Moir, the founder of the New Teacher Center, shared the most valuable lessons learned from the Center's extensive experience:

1. New teacher induction programs require a systemwide commitment to teacher development. Induction programs are most effective when all stakeholder groups are represented in the program design and when new teacher induction is part of a districtwide initiative to improve teaching and learning.
2. Induction programs accelerate the effectiveness of new teachers, fast-tracking their progress to exemplary teachers who have the ability to positively impact student achievement.
3. Standards-based, formative assessment tools and procedures are necessary to establish professional norms, collect evidence of student learning, and measure teacher growth over time.
4. Induction programs give talented teachers a midcareer boost and a powerful opportunity to develop leadership skills. An effective training course for mentors provides opportunities for professional growth for the mentor as well.
5. Principals are the critical component of any mentoring program when they have an unswerving commitment to ongoing professional development. The principal must fully understand and endorse teacher/mentor and collaborative grade-level meetings to cultivate a thriving learning community.
6. Effective induction programs must combine high-quality mentoring within communities of practice where teachers collaborate to design lessons, observe each other teach, and analyze student data.

7. To be successful, teachers need supportive school environments, where educators are valued, trusted, and have the time and ability to collaborate to improve instruction. For mentoring to affect the enculturation and instructional practice of beginning teachers, schools need sufficient resources, empowered educators, and the time and professional development to work closely with colleagues.
8. Online learning communities supplement in-person meetings and professional development training to provide timely, cost-effective mentoring. They offer access to resources, including experienced teachers, content facilitators, and content experts who may not always be available within the district.
9. There must be policies in place that fund mandates for mentored induction so that program quality and intention are strong enough to have an impact. A state-level infrastructure, including well-designed programs and teacher performance standards, and a system of communication and support are necessary.
10. Strong induction programs must embrace a robust, well-articulated vision and then work toward impacting teacher effectiveness and equitable student learning. State policies guide the development of the vision but accountability rests at the district level. Accountability transcends compliance and moves the school toward a cycle of continuous improvement that provides evidence of an acceleration of new teacher effectiveness.

Policy considerations

According to Linda Darling-Hammond, we need to develop much more effective policies to attract, induct, and retain prepared and committed teachers. Since attrition is a much greater problem in the overall teacher supply picture than is producing enough teachers to satisfy demand, we need to retain strong teachers by supporting their continued learning. School leaders and policymakers must understand the reasons for teacher attrition and develop effective strategies for keeping their best teachers (Darling-Hammond, 2010).

The implications from the research for educational policy and practice:

- **Organizational structures and supports:** Investing in competitive salaries is important; however, recruiting and keeping good teachers—both novice and experienced—is equally a question of attending to key working conditions that matter to them. In addition to class size, teaching loads, and the availability of materials, significant conditions include teacher participation in decision-making, strong and supportive instructional leadership from principals, and collegial learning opportunities.
- **Recruitment of prepared and qualified teachers:** Seeking out and hiring better prepared teachers has many payoffs and savings in the long run, both in terms of lower attrition and higher levels of competence.
- **Investment in induction and mentoring programs:** Investing in induction and mentoring programs provides a pipeline of effective and satisfied teachers who are prepared to enter and stay in high-need schools. Considering the high costs of attrition, many of the strategic investments needed to support competent teachers in staying, such as mentoring for beginners and ongoing learning and leadership challenges for veterans, pay for themselves in large degree.

- **Development of communities of professional teachers:** Developing a stable, high-quality teaching force that becomes increasingly effective creates a professional learning community that not only reduces the cost of teacher failure but also the cost of student failure.

Summary of findings

Today, school districts have the flexibility to use Title II, Part A funds creatively to address the challenges of teacher quality, including teacher preparation and qualifications of new teachers, recruitment and hiring, induction, professional development, and retention. Effective induction and mentoring programs have been shown to increase retention rates in many types of schools. To be effective the programs must be well-organized with instructive and expedient activities, a formal mentoring aspect, reduced teaching requirements for new teachers to give them time for training, and a formal way to assess the new teachers with a focus on assistance rather than evaluation (Serpell & Bozemen, 1999).

Requiring performance standards for "fully qualified teachers" as a prerequisite to hiring new staff means that well-prepared teachers will more likely remain in the profession long enough to contribute to the school's improvement goals. A synthesis of the research base on what teachers should know and be able to do to support student learning offers criteria that could serve as benchmarks for teacher preparation, licensing, and hiring. According to researchers and practitioners, "highly qualified" teachers possess the following characteristics:

- Possess a deep understanding of the subjects they teach
- Show a firm understanding of how students learn
- Demonstrate the teaching skills necessary to help all students achieve high standards
- Create a positive learning environment
- Use a variety of assessment strategies to diagnose and respond to individual learning needs
- Demonstrate and integrate modern technology into the school curriculum to support student learning
- Collaborate with colleagues, parents, community members, and other educators to improve student learning
- Reflect on their practice to improve future teaching and student achievement
- Pursue professional growth in both content and pedagogy
- Instill a passion for learning in their students
(NCTAF, 2003)

Supporting new teachers with high-quality, induction programs that lighten initial class load to accommodate coaching, mentorship, and collaborative planning would accelerate effectiveness. Focused professional development on lesson study, student work, test scores, and linguistic and cultural competence would yield quality instruction for improved learning (Serpell & Bozemen, 1999).

Good teachers are strongly attracted to school systems that focus on finding, keeping, and supporting good teachers. Effective teachers want to work in environments that support and appreciate them. They are sustained and nourished by other good teachers who become their trusted colleagues, coaches, and mentors and who share a commitment to creating a good learning environment for their students. Effective leaders attract effective teachers and together they create a great school environment where their teaching and learning can flourish (Darling-Hammond, 2010).

Higher salaries may be necessary but not sufficient to attract and retain high-quality teachers, especially in hard-to-staff schools. Strong administrative leadership in new teacher support would, at the very least, lower class loads and increase curricular resources, but would especially provide opportunities for new teachers to work collaboratively with other teachers under the tutelage of mentors who can help them develop their knowledge and skill from within the school community (Brill & McCartney, 2008).

Building the teaching profession to ensure quality teachers and learning for each student means paying teachers more, but differently, by reorganizing the school structure to create a tiered teaching profession that accommodates and rewards highly accomplished teachers who can manage and lead less experienced teachers (NCTAF, 2003).

As policymakers seek new ways to recruit and retain highly qualified and highly effective teachers, many of the current approaches—pay for performance and alternative routes—may have little impact. A systematic approach to teacher development is needed to directly address the problems schools and districts face (Berry, 2004). School staffing problems are not caused by "inexorable societal demographic trends" but by organizational issues that are amenable to systemic policy changes. By looking closely at the data, the underlying organizational conditions that undermine teacher recruitment programs can be identified and addressed. States, districts, and schools must address these organizational conditions that cause high levels of teacher attrition before teacher recruitment programs will successfully attract highly qualified and effective teachers into some of our schools (Ingersoll, 2003, p. 21).

As school systems approach teacher development systematically, there will be a paradigm shift. Ultimately, data structures will be reinvented so that valid and reliable information is used as a foundation for assessing the teacher development system and for pushing advances in policy and practice. Through this systematic shift, schools will cultivate teachers who know content, can teach, and understand how all students learn based on established and enforced standards for the teaching profession (Berry, 2004).

Lessons learned

Impact of attrition

- There is no shortage of teachers coming into the system. The real difficulty is that too many teachers are leaving the profession after only a few years.
- Finding, hiring, and training new teachers creates a large financial cost. As trained teachers leave their schools, a double loss occurs: Money has been lost in training that will not be applied as a tool for improvement at that particular school and more money has to be spent for training incoming teachers.

- High teacher turnover affects the school community and hinders long-term planning. Losing experienced teachers has negative implications for individual students, as well as for the school and district.

Impact of inequity

- Inequitable distribution of teacher expertise increases the likelihood that students in more impoverished and racially isolated schools will be taught by inexperienced and/or uncertified teachers.

Impact of work conditions

- Overwhelming workloads and too little planning time are the primary sources of dissatisfaction cited by teachers upon leaving a school or the profession.
- Severe behavior problems have been found to be negatively correlated with teacher satisfaction and novice teachers are typically assigned to the most difficult or problematic classrooms.
- School facilities, resources, and materials all have to meet basic quality requirements so they don't contribute to teacher attrition.
- Increases of between 25 and 40 percent are required before salary impacts retention.

Impact of professional supports

- Teachers seek work environments in which they are supported and treated as professionals, sharing ideas and resources with colleagues, and receiving respect and guidance from the principal.
- Strong professional communities that stress support and involvement in major decisionmaking improve teacher retention.
- Effective induction and mentoring programs have been shown to increase retention rates in many types of schools. The programs must be well organized with instructive and expedient activities and involve formal mentoring, reduced teaching requirements for new teachers to allow for training, and systematic assessment that focuses on assistance rather than evaluation of new teachers.

References

Alliance for Excellent Education. (2004). *Tapping the potential: Retaining and developing high-quality new teachers.* Retrieved from http://all4ed.org/reports-factsheets/tapping-the-potential-retaining-and-developing-high-quality-new-teachers

Angelle, P.S. (2006). Instructional leadership and monitoring: Increasing teacher intent to stay through socialization. *NASSP Bulletin, 90*(4), 318–334.

Berry, B. (2004). Recruiting and retaining "highly qualified teachers" for hard to staff schools. *NASSP Bulletin, 87*(638), 5–27.

Boyd, D., Grossman, P., Lankford, H., Loeb, S., & Wyckoff, J. (2008). *Teacher preparation and student achievement* (NBER Working Paper No. 14314). Cambridge, MA: National Bureau of Economic Research.

Brill, S., & McCartney, A. (2008). Stopping the revolving door: Increasing teacher retention. *Politics & Policy, 36*(5), 750–774.

Charlton, D., & Kritsonis, W.A. (2009–2010). Human resource management: Accountability, reciprocity and the nexus between employer and employee. *National Forum of Educational Administration and Supervision Journal, 26*(3), 46–61.

Clotfelter, C.T., Ladd, H.F., & Vigdor, J.L. (2007). Teacher credentials and student achievement: Longitudinal analysis with student fixed effects. *Economics of Education Review, 26*(6), 673–682.

Darling-Hammond, L. (2010). Recruiting and retaining teachers: Turning around the race to the bottom in high-need schools. *Journal of Curriculum and Instruction, 4*(1), 16–32.

Darling-Hammond, L., & Wei, R.C. (with Johnson, C.M.). (2009). Teacher preparation and teacher learning: A changing policy landscape. In G. Sykes, B. Schneider, & D.N. Plank (Eds.), *The handbook of education policy research* (pp. 613–636). New York, NY: Routledge.

Elementary and Secondary Education Act of 1965, as amended, Title II, Part A; 20 U.S.C. 6601–6641 (2006). Retrieved from http://www2.ed.gov/programs/teacherqual/legislation.html

Futernick, K. (2007). *A possible dream: Retaining California teachers so all students learn.* Retrieved from California State University, Center for Teacher Quality website: https://www.calstate.edu/teacherquality/documents/possible_dream.pdf

Guarino, C., Santibañez, L., Daley, G., & Brewer, D. (2004). *A review of the research literature on teacher recruitment and retention* (TR-164-EDU). Retrieved from RAND Corporation website: http://www.rand.org/pubs/technical_reports/TR164.html

Guin, K. (2004). Chronic teacher turnover in urban elementary schools. *Education Policy Analysis Archives, 12*(42), 1–20. Retrieved from http://epaa.asu.edu/ojs/article/view/197

Ingersoll, R.M. (2003). *Is there really a teacher shortage?* Retrieved from University of Washington, Center for the Study of Teaching and Policy website: http://depts.washington.edu/ctpmail/PDFs/Shortage-RI-09-2003.pdf

Laine, S. (2008, April). *Recruiting great teachers for urban schools: State policy options.* Presentation at the National Summit on Recruiting, Preparing, and Retaining Quality Urban Teachers, Denver, CO.

Levin, J., & Quinn, M. (2003). *Missed opportunities: How we keep high quality teachers out of urban classrooms.* Retrieved from ERIC database. (ED481608)

Moir, E. (2009). Accelerating teacher effectiveness: Lessons learned from two decades of new teacher induction. *Phi Delta Kappan, 91*(2), 14–21.

Murnane, R.J., Singer, J.D., Willett, J.B., Kemple, J.J., & Olsen, R.J. (1991). *Who will teach? Policies that matter.* Cambridge, MA: Harvard University Press.

National Commission on Teaching & America's Future. (1996). *What matters most: Teaching for America's future.* New York, NY: Author.

National Commission on Teaching & America's Future. (2003). *No dream denied: A pledge to America's children.* Washington, DC: Author.

No Child Left Behind Act of 2001, Pub. L. No. 107–110, 115 Stat. 1425 (2002).

Rosenholtz, S.J. (1989). *Teachers' workplace: The social organization of schools.* White Plains, NY: Longman.

Serpell, Z., & Bozemen, L.A. (1999). *Beginning teacher induction: A report on beginning teacher effectiveness and retention.* Retrieved from ERIC database. (ED448153)

Villar, A. (2004). *Measuring the benefits and costs of mentor-based induction: A value-added assessment of new teacher effectiveness linked to student achievement.* Santa Cruz, CA: New Teacher Center.

How States Are Using Title II, Part A Funds

According to the U.S. Department of Education (U.S. DOE), states received approximately $2.33 billion during the 2012/13 school year to fund such allowable teacher quality reforms as:

- Recruiting and retaining highly qualified teachers
- Offering professional development in core academic areas
- Promoting growth and rewarding quality teaching through mentoring, induction, and other support services
- Testing teachers in academic areas
- Reducing class size

To better understand how these funds were being used, U.S. DOE administered surveys to a nationally representative sample of 800 school districts at the end of the 2012/13 school year. The sample of districts was drawn from the Common Core of Data and stratified by district size (enrollment) and level of poverty. The key findings summarized data from the completed surveys of 80.5 percent of the sampled districts.

Key findings

- A total of 97 percent of districts received Title II, Part A funding for the 2012/13 school year. The highest poverty districts received a greater share of the funds than the lowest poverty districts (52% of the total allocation versus 9%, respectively), and the larger districts (i.e., those with 10,000 or more students enrolled) received the majority of the funds (61%).

- While districts can use Title II, Part A funds for multiple purposes, most districts allocate at least some funds for professional development for teachers and paraprofessionals (64%). Many districts also use funds to hire highly qualified teachers to reduce class size (47%).
- In allocating funds, 19 percent of school districts earmarked all of their available funds for reducing class size while 10 percent of districts spent all of their available funds on professional development for teachers and paraprofessionals.
- The majority of Title II, Part A funds (75%) was used to pay for professional development activities for teachers, paraprofessionals, and administrators (44%) and to pay for highly qualified teachers to reduce class size (31%). The amount of funds used for reducing class size has decreased from 57 percent in 2002/03 to 31 percent in 2012/13, while the percentage of funds used for professional development for teachers and paraprofessionals has increased from 27 percent in 2002/03 to 41 percent in 2012/13.
- Of the funds that went for professional development activities, a larger proportion were used for professional development for teachers and paraprofessionals (41% of the total Title II, Part A funds allocated) than for administrators (4%). Since 2002/03, the proportion of funds used for professional development for administrators has grown from 2 percent to 4 percent.
- Districts used 6 percent of the funds to pay for mechanisms and strategies aimed at recruiting and retaining highly qualified teachers, principals, and specialists in core academic areas. These mechanisms and strategies include scholarships, loan forgiveness, signing bonuses, and differential pay for teachers.
- Seven percent of funds were used for various initiatives that promote professional growth and reward quality teaching, such as mentoring, induction, or exemplary teacher programs.
- Eligible nonpublic schools received 5 percent of the funds for professional development purposes.
- School districts combined 1 percent of the funds with other federal program funds under the provisions of the Rural Education Achievement Program, and transferred 1 percent of the funds to another title through ESEA funding transferability provisions. Districts most commonly transferred funds to Title I.

Findings specific to class size reduction

- Approximately 14,986 teachers were paid with Title II, Part A funds in 2012/13. The majority of these teachers (58%) were paid to teach in kindergarten and grades 1–3. The average allocation for each class size reduction teacher was $51,567.
- The vast majority of class size reduction teachers paid in 2012/13 with Title II, Part A funds were general education teachers (88%). Of the remaining teachers, 1 percent were special education teachers, and 11 percent were other teachers.
- The largest percentage of class size reduction teachers paid with Title II, Part A funds were in the highest poverty districts (49%). The lowest poverty districts paid for the smallest proportion of these teachers (10%).

- The largest districts (those with more than 25,000 students) paid the largest percentage of class size reduction teachers (35% of the total), followed by districts with 1,000 to 2,499 students (16% of the total). The smallest districts (less than 300 students) paid the smallest proportion of these teachers (1% of the total).
- Overall, the number of class size reduction teachers paid with Title II, Part A funds has decreased by 51 percent since 2002/03. The proportion of these teachers paid to teach in K–3 decreased from 76 percent in 2002/03 to 57 percent in 2012/13. The proportion paid to teach in grades 9–12 has remained at approximately 5 percent.
- The average allocation for each teacher increased by 19 percent between 2002/03 and 2012/13. However, when the 2002/03 average allocation is adjusted for inflation, the allocation has decreased by 7 percent or $3,905.

Findings specific to professional development

- The majority of the funds used for professional development for teachers were allocated to activities in the subject areas of reading (23%) and mathematics (18%). Districts reported allocating 7 percent for science, 4 percent for history/social studies, and 5 percent for technology. A further 8 percent was allocated to foreign languages, fine arts, special education, and English as a second language.
- Districts allocated 24 percent of funds for professional development of teachers to activities in other academic subjects or areas not listed above, including health and physical education, Advanced Placement education, the Common Core State Standards (both reading and mathematics), various forms of interdisciplinary professional development, and targeted professional development based on school-specific needs.
- School districts spent 12 percent of their funds on professional development in other nonacademic topics. These topics included positive behavioral interventions and supports, teaching strategies, and classroom management.

Source: U.S. Department of Education. (2013). *Findings from the 2012–2013 Survey on the Use of Funds under Title II, Part A*. Retrieved from http://www2.ed.gov/programs/teacherqual/2013findingsfinal.doc

Findings specific to recruitment, induction, and retention

- In addition to class size, teaching loads, and the availability of materials, working conditions significant in teacher recruitment and retention include teacher participation in decisionmaking, strong and supportive instructional leadership from principals, and collegial learning opportunities.
- Seeking out and hiring better prepared teachers has many payoffs and savings in the long run, both in terms of lower attrition and higher levels of competence, which reduce later costs.

- Investing in induction and mentoring programs provides a pipeline of effective and satisfied teachers who are prepared to enter and stay in high-need schools. Considering the high costs of attrition, many of the strategic investments needed to support competent teachers in staying, such as mentoring for beginners and ongoing learning and leadership challenges for veterans, pay for themselves in large degree.
- Developing a stable, high-quality teaching force that becomes increasingly effective creates a professional learning community that not only reduces the cost of teacher failure but also the cost of student failure.


Northwest Comprehensive Center
at Education Northwest