Utah FOUNDATION Research Report

Report Number 717, October 2013

ELEVATING STUDENT ACHIEVEMENT

SUCCESSFUL EDUCATION POLICIES AND PRACTICES IN UTAH'S PEER STATES

HIGHLIGHTS

- Peer and benchmark states employ professional development strategies such as personalized training that emphasizes pedagogy, content knowledge, and classroom practice to improve teacher quality and effectiveness.
- Mentoring and coaching of novice educators by carefully selected, effective teacher mentors addresses workforce induction, retention, and effectiveness.
- More states are using periodic assessments and data-driven tools to inform classroom instruction and teacher practice throughout the year, rather than only at the end of the year. Student growth models enable the tracking of year-over-year growth of individual students in comparison with similarly-achieving peers.
- High quality preschool and full-day kindergarten programs that target at-risk student populations have been shown to provide a strong positive return on investment. Programs in New Jersey, Massachusetts, and Colorado have reduced grade retention, decreased usage of special education services, and improved student achievement in the early grades.
- Peer states are leveraging third-party, nation-wide organizations with proven results and early warning systems to intervene with students at risk of dropping out.
- To improve college readiness, peer states provide college information counseling to students and their parents who may have little personal experience or knowledge of college admission requirements, cost, and processes.

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In 2010, Utah Foundation published research on the educational performance of Utah and its demographic and economic peer states. That study showed Utah lagging in student achievement over time while peer states were continuing to rank highly on national test scores. This new study is a response to frequent requests for more information about education policies and practices in Utah's peer states. It is hoped that this information will be useful in crafting state policies to improve Utah's educational outcomes.

SUMMARY OF FINDINGS

For most states, including Utah, K-12 education is both a significant portion of the monetary resources expended and a key focus of policy-makers and stakeholders throughout the state. However, Utah has lost ground in student achievement over the past 15 to 20 years. Although the level of proficiency of Utah's fourth- and eighth-grade students has continued to increase, Utah has not kept pace with top-performing states or with the nation as a whole. For example, in 1996 Utah ranked 13th in both fourth- and eighth-grade math and 17th and 15th in fourth- and eighth-grade reading respectively on National Assessment of Educational Progress (NAEP) assessments. However, in 2011, Utah's rank had fallen to 25th in eighth-grade math, 21st in fourth-grade math, 23rd in eighth-grade reading and 30th in fourth-grade reading. Moreover, Utah students perform at the national average in fourth-grade reading and eighth-grade math, and barely above the national average on the other assessments.[1]

Utah Foundation undertook this study to uncover programs and practices used by top-ranked peer and benchmark states that have contributed to student achievement over time. The rationale behind the selection of these peer states—Colorado, Minnesota, Montana, North Dakota, South Dakota—and benchmark states—Massachusetts and New Jersey—is described in the methodology section below. Utah Foundation interviewed state officials in these states and conducted third-party research to develop findings and conclusions with respect to policies and practices that may have contributed to improved student performance and test scores.

Teacher Quality and Professional Development

The focus on teacher quality and support of effective teacher practices in the classroom are key strategies among the peer and benchmark states. High-quality teacher induction and mentoring are paramount, as is research-based professional development throughout teachers' careers that emphasizes pedagogy, content knowledge, and classroom practice. States have been reforming and experimenting with the design and delivery of professional development, such that professional development is often customized to teacher and student needs as revealed by teacher evaluation and student assessment. Personalized training is accompanied by mentoring and coaching by highly effective and carefully selected teachers who are trained in mentorship practices. In addition, many states are experiencing success with Professional Learning Communities and job-embedded training, which brings professional development back to the school and classroom level.

Timely, Standards-based Student Assessment

Complementary to professional development is the use of assessment to inform classroom instruction and teacher practice. Assessment is closely aligned with rigorous state-wide standards and incorporated into data-driven tools that provide teachers with timely student performance information. Student growth models are being used with more frequency to track and document the year-over-year growth of individual students in comparison with similarly-achieving peers. These formative tools enable educators to modify instructional practices as students' needs evolve throughout the school year (as opposed to only at the end of the year). In addition, these tools enable parents and other stakeholders to better understand the gains or gaps that are occurring. States that have implemented more rigorous standards, aligned their standards and assessments with international standards, implemented data-driven assessment and reporting tools, and maintained higher, more competitive cut points have typically produced higher student achievement scores.

While fourth graders in several of the peer states have yet to reach top proficiency in both math and reading, they still rank in the top third of U.S. states. However, average eighth-grade NAEP test scores in the peer and benchmark states are typically ranked in the top ten, indicating that these states have strong middle grade programs and instruction. In addition, several of these states have significantly improved NAEP scores for disadvantaged or minority student subgroups, thereby reducing achievement gaps.

Early Childhood Education

Both early childhood and kindergarten programs show progress in addressing the achievement gaps that plague nearly every state in the union, including Utah. High quality preschool programs and full-day kindergarten programs that target at-risk student populations have been shown to provide a strong positive return on investment. Outcomes from programs in New Jersey, Massachusetts, and Colorado indicate that participants have reduced grade retention, decreased use of special education services, and improved student achievement in the early grades. Positive results from these programs have been substantiated by recent research studies in other states and from preschool program outcomes in Utah, such as those in the Granite school district.

High School Interventions

Programs to increase high school graduation rates and college and career readiness have also been successful. Many states leverage third-party, nation-wide organizations with proven track records to target at-risk students with coaching and counseling services. Other states provide more personalized counseling services to ensure students stay on track, both for graduation and for college and career readiness. The ability of states to customize program offerings to student needs, together with the adoption of a holistic and inclusive approach that addresses cultural and socio-economic differences, has proven to be effective. States offer some students additional rigor in the high school curriculum, while providing other students the ability to customize high school programs and schedules to accommodate challenging and unique personal situations. In addition, some states provide college information counseling to students and their parents who may have little personal experience or knowledge of college admission requirements, cost, and processes. Smaller high school cohorts that are serviced by a larger number of counselors and advisors are commonly found within the peer and benchmark states.

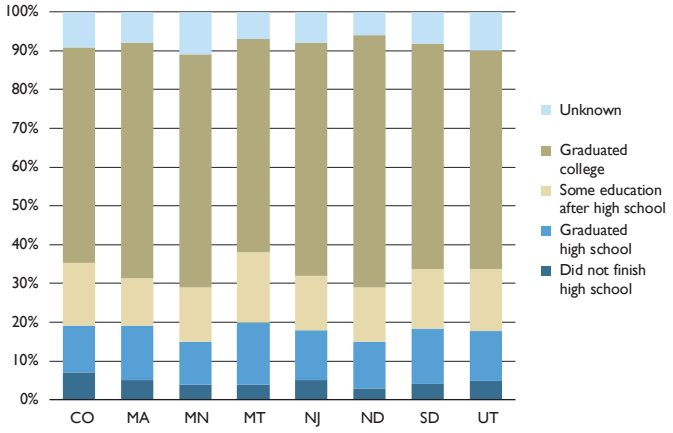
Another key theme is the responsibility and accountability that peer and benchmark states place on local districts and schools. There is a trend toward reducing numerous compliance requirements and, instead, looking to districts to demonstrate results as measured by improvements in student achievement and allowing local entities more discretion in selecting strategies to meet their achievement goals. Districts and schools select curriculum, professional development, and programs that not only align with state-mandated standards, but also meet the needs of their unique student populations. In turn, states are taking a more supportive role, providing the resources and guidance to enable schools, teachers, and students to be more successful.

INTRODUCTION AND METHODOLOGY

As mentioned above, the purpose of this study is to identify programs and practices within select peer and benchmark states that have contributed to student achievement over an extended time period. In addition to interviewing key officials in these states, Utah Foundation analyzed programs and associated outcomes to identify areas of opportunity to improve student achievement within Utah's schools. The case studies and programs highlighted in this study were selected because they were mentioned as being integral to student achievement during the telephone interviews or were emphasized in Race to the Top (RTTT) applications. The appendix provides a list of the individuals who were interviewed for this study.

In a September 2010 Utah Foundation study on how Utah school testing results compare to those of states with similar demographics, Utah Foundation selected comparable or "peer" states based on three factors: parental education levels—the percent of students who have at least one parent who graduated from college, racial and ethnic makeup of the student population, and the percent of students who qualify for free or reduced-price lunch as a measure of poverty. In this report, Utah Foundation utilized those same parameters to determine which states are considered "peer states"—Colorado, Minnesota, Montana, North Dakota, and South Dakota. These peer states typically have student populations that perform better than Utah students on the National Assessment of Educational Progress (NAEP) standardized test, which

Figure 1: Parental Education Attainment by State, 2011



Source: National Center for Education Statistics (NCES).

is the largest national and ongoing assessment of the knowledge of students across the U.S. in a number of content areas and is considered a "common yardstick."[2]

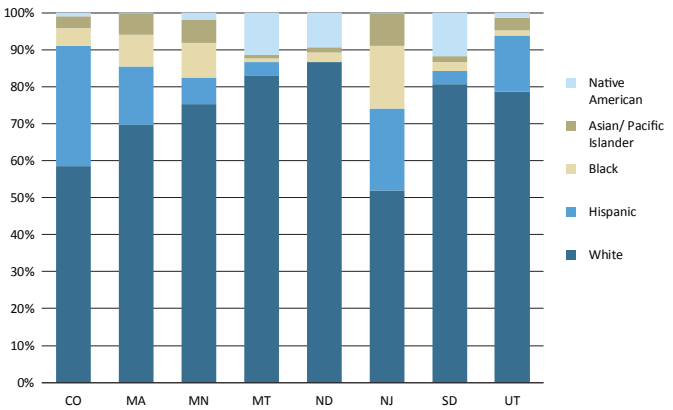
For this study, Massachusetts and New Jersey were also reviewed due to their exceptional and consistent test scores on the NAEP assessment. For purposes of this report, Massachusetts and New Jersey will be considered benchmark states—examples of the "gold standard" of successful education policies.

The National Center for Education Statistics (NCES) is the source of much of the data presented in this section. Although there may be more recent data for some of these categories, NCES is the best source to provide consistent data for all states.

Figure 1 illustrates parental education attainment for the peer and benchmark states. The data reflects the highest educational attainment within the household where a child resides and shows that Utah's profile is similar to those of the peer and benchmark states. Studies have found that students with parents who are high school graduates do less well in the classroom than those who have a parent who is a college graduate.[3]

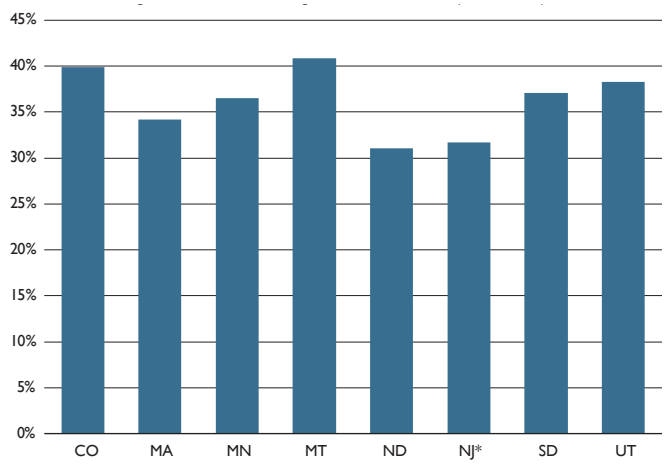
Figure 2 highlights the similarities in the ethnicity of student populations between Utah and peer states Minnesota, Montana, and the Dakotas. However, with the growth in Utah's Hispanic

Figure 2: Ethnicity of Student Population, 2010-11



Source: NCES.

Figure 3: Students Receiving Free/Reduced Lunch, 2009-10



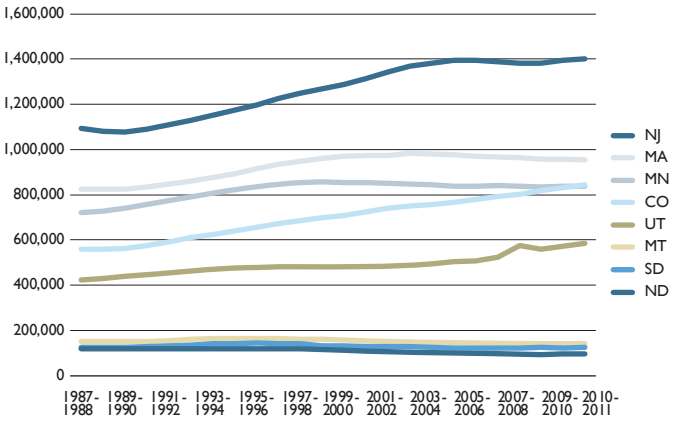
Source: NCES.

population, the state's student population increasingly resembles peer state Colorado. Over the past dozen years, Colorado's Hispanic student population has grown by more than eight percent, while Utah's has grown by nearly six percent. Minnesota is expecting explosive growth in its non-White populations until at least 2020, with the Hispanic population expected to grow by 160 percent and the African American population expected to grow by 57 percent.[4]

Figure 3 illustrates that the percentage of children receiving free and reduced lunch is fairly consistent across the benchmark and peer states. Utah's poverty rate for children between the ages of five and 17 is 14.1 percent, compared to the national rate of 21.0 percent. While Utah has the lowest per capita income in the U.S. due to larger than average family size, median household income has historically been slightly higher in Utah than for the rest of the nation, due, in part, to the relatively low number of single-person households in Utah compared with other states.

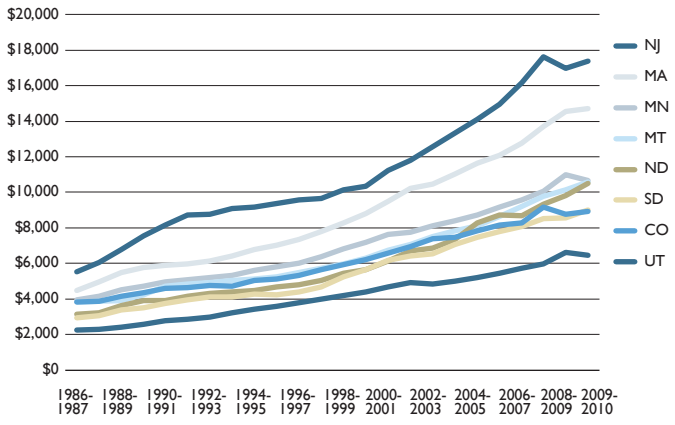
Student populations in the Dakotas, Minnesota, and Montana have remained stagnant, while populations in New Jersey and Massachusetts are beginning to decline after periods of steady growth (Figure 4). However, Colorado and Utah are both experiencing rapid growth, which is expected to continue. Due to the recent energy industry

Figure 4: Total Students by State, 1988-2011



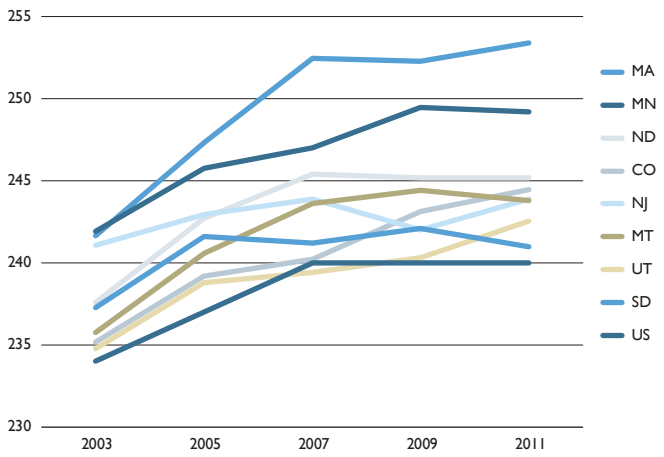
Source: NCES.

Figure 5: Average Per Pupil Spending By State, 1987-2010



Source: NCES.

Figure 7: 4th Grade NAEP Math Scores, 2003-2011



Source: NCES.

boom, North Dakota has also experienced considerable growth in its student population, creating both opportunities and challenges,[5] such as placing students in appropriate grade levels, improving student proficiency, finding affordable housing for staff, and accommodating the larger student population.[6] South Dakota, Montana, and North Dakota also have the largest percentage of schools located in rural communities in the US.[7]

Figure 5 highlights the average per-pupil funding for each of the peer and benchmark states. As is widely understood, Utah provides funding that is significantly lower than that of peer and benchmark states. For example, Massachusetts per-pupil spending is more than two times, and New Jersey's per-pupil spending is more than two and one-half times, that of Utah's.

NAEP Scores: Utah

With the exception of fourth-grade reading scores, Utah's NAEP reading and math scores are higher than the national average and have steadily increased since 2003.[8] From 2004 to 2009, Utah's student achievement increased from 78 percent to 81 percent of students deemed proficient in language arts. In mathematics, Utah students showed growth from 72 to 75 percent of students deemed proficient from 2003 to 2008.[9]

NAEP Scores: Peer States

Figures 6 through 10 highlight NAEP scores and Trends in International Mathematics and Science Study (TIMSS) scores for the most recent assessment periods for the peer and benchmark states.

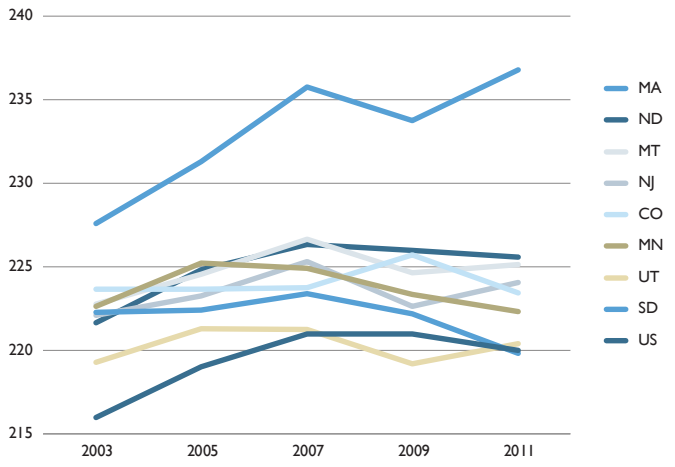
Colorado

In 2011, Colorado ranked thirteenth and seventeenth in fourth-grade math and reading, respectively, and eighth in both eighth-grade math and reading.[10] In the years between 2003 and 2009, the percentage of fourth graders scoring at least "proficient" or above increased from 34 to 45 percent, while the percentage of students scoring proficient in eighth-grade math increased from 32 to 40 percent. For three of Colorado's four racial/ethnic subgroups, as well as low-income students, the percentage of students deemed proficient improved by five percentage points or more.

Minnesota

Minnesota has consistently exceeded the national average on NAEP mathematics tests since 1992, and on reading tests since 1998.

Figure 6: 4th Grade NAEP Reading Scores, 2003-2011



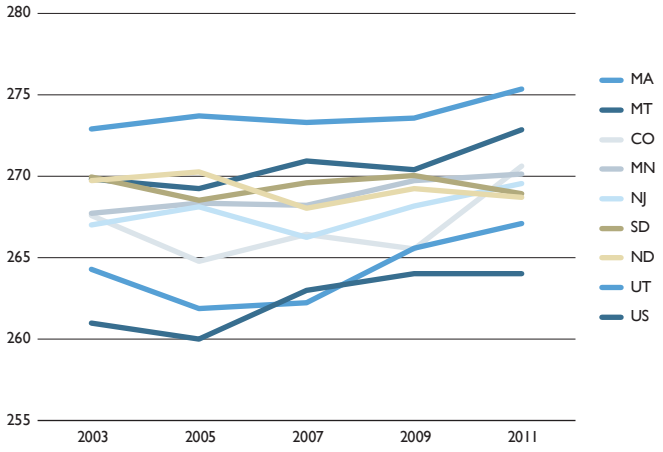
Source: NCES.

Figure 8: Trends in International Mathematics and Science Study, Average Grade 8 Mathematics, 2011

Education System	Average Score
Republic of Korea	613
Singapore	611
Chinese Taipei-CHN	609
Hong Kong -CHN	586
Japan	570
Massachusetts	*561*
Minnesota	*545*
Russian Federation	539
Colorado	*518*
Israel	516
Finland	514
United States	**509**
England-GBR	507
Hungary	505
Australia	505
Slovenia	505
Lithuania	502
Italy	498
New Zealand	488
Kasakhstan	487
Sweden	484
Ukraine	479
Norway	475

Source: NCES.

Figure 9: 8th Grade NAEP Reading Scores, 2003-2011



Source: NCES.

However, on the 2011 NAEP, Minnesota fourth graders ranked third in math, but only twenty-first in reading. Eighth graders ranked second in math and ninth in reading.[11] Since 2007, Minnesota has participated in the TIMSS exam as an individual "nation," along with Massachusetts and Colorado, all of whom ranked competitively. To prepare, fourth-grade teachers devote more time on math topics covered internationally at that level, such as whole numbers, fractions, decimals, and number patterns.

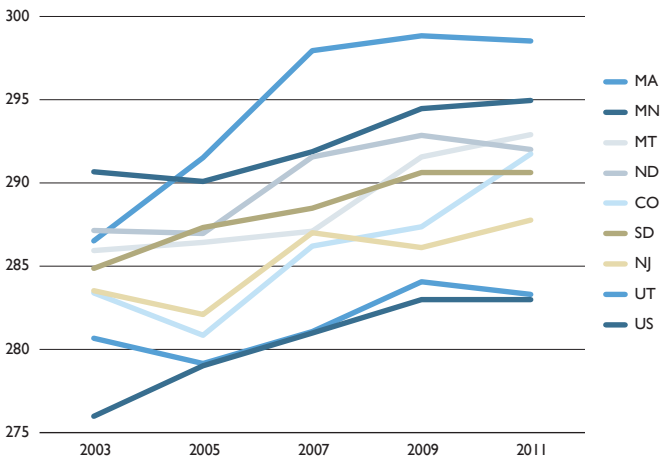
Montana

In both reading and math, Montana's average NAEP scores have risen steadily since 2003 and are consistently above the national average. Fourth-grade reading and math scores for American Indian students have improved significantly since 2003 and scores for low-income students are significantly higher than the national average. Indeed, Montana has the smallest difference in test scores between low-income and higher-income students in the nation. On the 2011 NAEP, Montana's fourth graders ranked eighteenth in math and tenth in reading, while eighth graders ranked fifth in both math and reading.[12]

North Dakota

North Dakota has maintained NAEP rankings well above the national average. In 2011, North Dakota fourth graders ranked tenth in math and ninth in reading and eighth graders ranked seventh in math and 14th in reading.[13] Between 2003 and 2011, North Dakota students have improved their NAEP scores most significantly in math from 238 to 245 for fourth graders, and from 287 to 292 for eighth graders.[14]

Figure 10: 8th Grade NAEP Math Scores, 2003-2011



Source: NCES.

South Dakota

South Dakota's eighth-grade NAEP results are consistently higher than the national average and have shown ongoing improvement from 2003 to 2009 in both math and reading. On the 2011 NAEP, South Dakota ranked ninth and twelfth in eighth-grade math and reading respectively, but in the bottom half among the U.S. states in fourth-grade math and reading.

In South Dakota, the achievement gap for American Indian students has widened. More than one-third of American Indian students in the state do not earn a high school diploma, which is associated with low lifetime earnings, potential drug use and incarceration, and poverty. The American Indian population is the fastest growing demographic in the state.[15]

NAEP Scores: Benchmark States

Massachusetts

Massachusetts students ranked first nationally on the NAEP assessments in both reading and math in 2005, 2007, and 2011.[16] Rankings have also been impressive on the TIMSS assessments in math against international students.[17]

New Jersey

In 2011, New Jersey fourth-grade students exceeded the national test score averages by eight points, while eighth-grade students exceeded the national average by eleven points.[18] In addition, New Jersey's low-income students have improved their NAEP scores at a higher rate than the national average.[19] On the 2011 NAEP, New Jersey consistently ranked in the top five, with fourth graders ranking fourth and second in math and reading respectively and eighth graders ranking third and second in math and reading respectively.[20] However, despite providing education funding at nearly $18,000 per pupil, some troubling challenges persist, including significant state-wide achievement gaps and average scores on college readiness exams (i.e. ACT and SAT).[21]

CONTENT STANDARDS AND STUDENT ACHIEVEMENT

Since its enactment in 2001, the No Child Left Behind (NCLB) Act has required states to establish and implement standards for student learning and to measure students' progress through assessments that are aligned with these standards. The legislation was enacted under the assumption that standards-based education can result in improved teaching and student learning. Richard Lee Colvin, executive director of Education Sector, an independent think tank that challenges conventional thinking in education policy, suggests that standards can drive every aspect of an educational system, including teacher preparation, teacher and staff evaluations, curriculum, assessment, and funding.[22]

Over the last two decades there have been hundreds of studies that have evaluated the effects of standards-based education. However, few studies have evaluated the evidence with respect to whether standards-based education results in better educational outcomes.[23] Mid-continent Research for Education and Learning (McREL), a non-profit education research and development organization,

reviewed nearly 700 studies on educational standards that have been published since January 1995.[24] The general findings of this meta-analysis are that standards-based policies have a predominantly positive effect on student achievement and can influence teaching and student learning in K–12 classrooms. However, the intensity and the format of these effects depend on how standards-based policies are interpreted and implemented by teachers. According to a study by Lauren Resnick and Chris Zurawsky of the Learning Research and Development Center at the University of Pittsburgh, more attention and resources are needed for instructional support systems in schools, including curriculum, instruction, professional development, and interventions for struggling students.[25] The McREL review supports this finding that helping teachers implement standards in their classrooms will improve standards-based education.[26]

Conversely, ratings from the Fordham Foundation have shown that the quality of state standards is not necessarily related to student achievement. Grover J. "Russ" Whitehurst, director of the Brown Center on Education Policy, suggests that test score gaps on the NAEP tests are typically due to socio-economic status, as opposed to content standards and that states whose content standards have been rated highly by the Fordham Foundation do not necessarily score better on NAEP tests than lower-rated states.[27] Another complicating factor is that there is not agreement among standard rating agencies regarding which states have the highest quality standards.[28]

Tom Loveless, a Harvard education policy professor and Senior Fellow of the Brookings Institution, agrees that standards seem to have a minimal effect on the variance in student achievement.[29] Joshua Goodman of the Harvard Kennedy School found that improving state standards has no statistically significant effect on overall student achievement, but that improving standards in low-scoring states can result in better math test scores for low-scoring and minority eighth-grade students, especially in schools where instruction and pedagogy are poor.[30] When comparing states with respect to student achievement, the "catch-up" theory posits that improved student achievement is easier and more cost-effective for low-performing student populations than for those that are already performing at high levels. States performing at lower levels copy successful programs of higher-achieving states thus enabling them to "catch up" over time. In turn, the higher-performing states cannot innovate as quickly or cost-effectively as those states that are replicating successful practices.[31]

In addition, Loveless argues, variations in achievement within a given state are much greater than the variation between two states.[32] Therefore, commonality of standards may reduce the variation in achievement among states, but will most likely not affect the variation within a state.[33] As illustrated in Figure 11, the variance within a state is much greater than differences between each of the states, on average.[34]

Figure 11: Variations in NAEP Scores Within and Between States, 2009

	Average State NAEP Score	Between-State Standard Deviation	Within-State Standard Deviation
4th Grade Reading	220.1	6.6	34.7
4th Grade Math	239.5	6.3	27.8
8th Grade Reading	263.3	6.5	32.9
8th Grade Math	282.4	8.5	34.8

Source: Brown Foundation.

As outlined above, the research regarding content standards is not conclusive regarding their effectiveness. However, the research also highlights that the implementation of standards—including aligning assessments and curriculum to standards, teacher training, and informing teacher practice—is critical for improving student achievement. In addition, many of the peer and benchmark states are implementing student growth models that provide a data-driven foundation that illuminates areas needing additional improvement and attention.

To date, forty-five states, four U.S. territories, the District of Columbia, and the Department of Defense Education Activity have adopted the Common Core State Standards in language arts, math, and science. All of the peer and benchmark states highlighted in this report are adopting these standards, with the exception of Minnesota, which has adopted the Common Core standards for language arts only. Among the peer and benchmark states, standards-based decisions typically occur at the state level, while curriculum decisions typically take place at the local level. Whitehurst posits that the selection of curriculum on student achievement can have a significant effect compared to other policy levers that can be deployed. The cost difference between high quality and less effective curricula is small, whereas the impact of this choice can be large. Therefore, reforming curriculum, which may require a modest funding effort, could have a large impact on school performance.[35]

Case Studies: Peer States

Colorado

Colorado introduced Model Content Standards in 1993, implemented state-wide assessments in 1997, and introduced a state-wide standards-based accountability system in 2001. In 2008, the Colorado Achievement Plan for Kids (CAP4K) was passed with bi-partisan support. CAP4K revised state content standards, resulting in internationally benchmarked grade-by-grade content and performance standards in 13 subjects and the creation of definitions of school, college, and workforce readiness.[36] In addition, CAP4K aligned state assessments with the new clearer, higher standards, created high school graduation guidelines, and set annual goals with respect to student growth, student assessment performance, and achievement gap reduction.[37] Local Education Affiliates (LEAs)—local associations of the National Education Association (NEA)—and individual schools were provided with frameworks and assistance to build assessments and align their goals with those of the state.[38] The standards and assessments developed with CAP4K have now been correlated with Common Core standards in every district and will be transitioned throughout the state over the next two years.

Colorado has been widely recognized for its Growth Model and SchoolView data analysis program, which were initiated in 2004.[39] Using a 2007 Longitudinal Data System grant, Colorado deployed the SchoolView DataCenter in 2009. In addition to expanding the system's data warehouse and local access to data analysis tools, the enhanced features allow stakeholders to access and analyze performance data for students, schools, LEAs, and educators.[40] SchoolView serves as Colorado's public data portal, providing easy access to data on federal and state accountability results, academic performance, and student and school demographics.

According to the Colorado Department of Education web site, the Colorado Growth Model indicates "how much academic progress each

student made in a year, as compared with that of students who started at similar levels of proficiency."[41] The Colorado growth model offers comparisons among schools with respect to how they are progressing toward state standards.[42] Growth rates for each student are determined and the data is then used to calculate school performance.[43]

In addition, the performance framework report provides information about how schools are meeting specific performance indicators—achievement, growth, extent of achievement gaps, and college and career readiness—at the state, district, and school levels.[44] These performance indicators roll up into a district accreditation rating and school evaluation ratings that dictate required school improvement plans.[45] Due to Colorado's documented success of the project and usefulness of the tool, both Arizona and Indiana have signed agreements with the State of Colorado to leverage the SchoolView technology.

Minnesota

In 2003, Minnesota's English language arts standards were shifted from grade-span to grade-specific. In 2006, Minnesota incorporated quality review feedback provided by Achieve—"a bipartisan, non-profit organization that helps states raise academic standards, improve assessments, and strengthen accountability"[46]—and adopted new standardized exams to align with the revised 2003 state standards.[47] This bi-partisan, system-wide initiative affected every aspect of programs, policy, and research-based practices to implement standards-based education for all students and embed "the knowledge and skills students need for college readiness and advanced work" in each subject area.[48]

In 2007, Achieve recognized these efforts and asserted that student mastery of Minnesota Academic Standards would result in preparedness for the workplace and college. Since 2007, Minnesota has also utilized Surveys of Enacted Curriculum, which are detailed, comprehensive, web-based assessments that compare an individual teacher's actual classroom practices to state standards. These assessments are used to identify gaps, redundancies, lack of rigor, and opportunities to improve the integration between standards and the enacted curriculum.

Between 2003 and 2008, the state made some headway in narrowing achievement gaps. While the overall graduation rates improved two percentage points by 2008, Hispanic graduation rates improved by seven percent, African American by six percent, American Indian by five percent, and English Language Learners by four percent.[49]

The Math and Science Teacher's Academies were established in 2007 through legislative mandate to ensure consistent implementation and alignment to standards.[50] In 2008, science standards were revised to include algebra, engineering design concepts, and information management from kindergarten through twelfth grade. In addition, graduation requirements were enhanced to include mandatory biology, Algebra II, and two additional science classes. Within one year of the implementation of these new standards, fifth-grade scores improved by six percent, eighth grade scores by four percent, and high school scores by seven percent.[51] Minnesota state officials also tout the most recent ACT results, which rank Minnesota students first in the nation with an average score of 23.[52]

Minnesota implemented the Minnesota Growth Model in 2008-09 for reading and math for grades three through twelve.[53] The model is designed to provide insight into individual student growth on annual summative standardized reading and math tests over multiple years. Using growth data, educators can determine how many non-proficient students can become proficient at their existing growth rate. In addition, using data going back to the 2006-07 school year, leaders can detect the growth levels and variations in student progress of both proficient and non-proficient students in a given school.[54]

Growth expectations are defined individually for each student based on current and prior year performance. To achieve Annual Yearly Progress (AYP), a school must meet the state's annual measurable objectives in reading and math, attain at least 95 percent participation on the Minnesota Comprehensive Assessment, achieve 90 percent attendance, and maintain an 80 percent graduation rate.[55] State officials predicted that an easily understood model would enable educators to use student data to experiment with different instructional strategies for non-proficient and proficient students.[56]

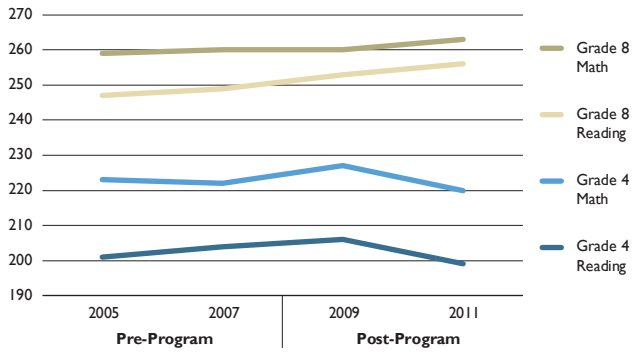
However, despite these ambitious initiatives, Minnesota's achievement gap is still one of the worst in the nation across all races and ethnicities. There is bi-partisan support for a focus on equity, with Minnesota Department of Education Commissioner Dr. Brenda Cassellius emphasizing the necessity of narrowing achievement gaps.[57] Through a key new initiative, the Implementation Science Program, frameworks and lessons are being deployed for powerful educational transformation across Minnesota. The state has already published a toolkit for English language arts implementation.[58]

Montana

For the past twelve years, the Montana Board of Public Education has worked to develop state-wide standards in mathematics and communications that will promote excellence and high achievement. These standards already meet or exceed the Common Core Standards for career and college readiness and K-12 English/Language Arts and Mathematics Standards. Since Montana has not received a waiver from NCLB, the state continues to strive for a goal of 100 percent proficiency.[59] To date, the state has achieved 90 percent proficiency in reading and 80 percent proficiency in math. With respect to reducing the achievement gap, the data shows that Montana has made some gains.

Montana has a unique educational philosophy that focuses on educating the "whole" child, and the state Constitution requires that the implementation of state standards incorporates the distinct and

Figure 12: Montana American Indian NAEP Scores, 2005-2011



Source: NCES, Montana Board of Public Education.

unique cultural heritage of Montana's American Indians.[60] Although academic achievement is a priority, state policy mandates that schools in the state should also cultivate each student's physical, mental, emotional, and spiritual development. Officials believe this holistic approach to education may have contributed to improved results on the NAEP and the state's own criterion reference tests (CRTs). The state cites narrowing achievement gaps among sub-groups as a significant contributor to this success. Eighth-grade American Indian scores for reading and math have improved significantly since 2003 and reading and math scores for low-income students are significantly higher than the national average. Indeed, Montana has the smallest gap in test scores between low-income and higher-income students in the nation.

The Indian Education for All Act (IEFA) was passed in 1999,[61] which requires schools to teach about American Indian history and culture. Poverty is especially high among American Indians living on Montana reservations, and funding is provided specifically for targeting the achievement gap at the local level.[62]

Montana has implemented a rigorous Science, Technology, Engineering, and Mathematics (STEM) curriculum at all academic levels. The Governor and First Lady's Science and Math Initiative, which was established in 2006, facilitates the discovery of STEM topics in both K-12 schools and higher education institutions by exploring Montana's resource-rich surroundings, learning about renewable energy, and hearing about career opportunities in STEM fields.[63]

In 2009-2010, Montana piloted an online writing program that provides immediate embedded feedback to students and offers tools and online professional development for teachers. Programs were tested by 500 fifth- to ninth-grade students in nine LEAs who used the tools to complete more exploratory writing for which they received comprehensive feedback.[64] The objectives of the program included the intent to improve learning outcomes and literacy, enable more data-based decision making, and promote the effective use of technology.[65]

Deputy Superintendent Parman emphasized that holistically viewing the educational system as a collection of assets enables the state to identify when issues need to be addressed in a district or school. When there is a struggling school, it signals that an "asset" is missing—leadership, community support, appropriate curriculum, or union agreement—requiring the state to step in to help alleviate issues.[66]

North Dakota

In 2002, North Dakota developed new science and math standards and immediately saw increases in student scores—both NAEP and internal testing—which officials attribute to the increased rigor of the new standards. The state has now adopted the Common Core standards and anticipates that these standards will ensure that students become more college-ready.[67]

In 2011, the state launched the North Dakota Moving to Improve Learning for Everyone (NDMILE) Program, based on the Indistar framework that assists school improvement teams to "inform, coach, sustain, track, and report improvement activities."[68] This program, which has been leveraged in approximately half of the U.S. states and is aligned with both Title I and NCLB requirements for school improvement, uses research-based indicators of effective practice. State officials expect that, when implemented properly through local control, these practices will drive school improvement and increase student achievement. Despite the newness of this program, struggling schools are seeing improvements in student achievement and staff collaboration. According to school officials, approximately 100 schools are implementing this cost-effective program and have seen great success.[69]

South Dakota

South Dakota Superintendent Melody Schopp is pleased with the 2013 ACT results showing improvement in the performance of South Dakota high school students, which she feels validate the rigorous curriculum that has been promoted. ACT scores in science have improved and the percentage of remediation needed has been reduced.[70]

The Superintendent also cites a number of key success factors. Although the state establishes standards, local control means that districts and schools may choose their own curriculum and textbooks. Professional development is focused on personalized learning, pedagogy, teacher practice. Standards-based report cards focus on mastery of content, not just grades. State-wide testing is supported by a strong technical infrastructure that emphasizes personalized learning, online assessments, and distance learning opportunities to support remote districts.[71]

Case Studies: Benchmark States

Massachusetts

Massachusetts has earned a nation-wide reputation as a leader in education. In 1993, the state enacted the Education Reform Act, which required the setting of rigorous but achievable standards. In 2001, Massachusetts incorporated standards and assessments for technology and engineering into the science content area. From 2002 to 2009, Massachusetts' tenth graders improved their performance in mathematics such that the average student score is now "Advanced." Low-income students moved from the Needs Improvement level to Proficient within an eight-year period. These results come despite the high standards and a consistent dropout rate.[72]

In 2008, Governor Deval Patrick established the Education Action Agenda (EAA) as part of the Commonwealth Readiness Project—a nine-month study by education, business, and civic leaders that assessed Massachusetts' education system. The EAA set goals regarding individualized learning, effective teaching, college and career readiness, and systemic change. Legislation in 2010 solidified these goals with policies expanding charter schools, authorizing intervention in lowest performing schools, and fostering collaboration within districts.[73]

Since 2009, growth models have enabled the state to measure improvements in individual student performance over time. Massachusetts provides a free, state-wide data warehouse, which stores state and local education data in an easy-to-use system that includes responses to every standardized test for every student since 1998. The system also provides student-level growth data and allows individual LEAs to import local test data. The agency provides a public website that displays demographic and performance information, as well as teacher compensation data for each LEA and school.[74] Each student is compared to his or her academic peers—defined as other students state-wide with similar MCAS test score histories.[75] Massachusetts' growth model enables districts and

schools to more easily identify promising or struggling programs and practices. The model aggregates information to the school or district level with respect to how much academic progress individuals and their peers made over time, how growth compares to their peers, and if the growth is typical.[76] Where weakness in student performance has been detected, the state has intervened with additional funding for professional development in content knowledge and pedagogy.

To assess student readiness for college or career, Massachusetts reviews a combination of *Massachusetts Comprehensive Assessment System* (MCAS), SAT, and Advanced Placement test results. One study found that low scores on the tenth-grade MCAS assessment can predict the need for remediation in college, enabling educators to intervene when detected.[77]

Massachusetts still has some considerable challenges with respect to graduation rates and achievement gaps. Although low-income fourth graders from Massachusetts placed first on the NAEP English Language Arts assessment, the state's achievement gap was still in the top third of the nation. Performance of English Language Learners is low. In addition, each graduating class sees more than 7,000 students drop out prior to graduation, despite, in some cases, having met the state requirements for graduation.[78]

In 2006, Massachusetts established a state-wide Expanded Learning Time program, serving 19 high-poverty schools with more than $15 million in funding support.[79] As a result, more than 10,000 students are benefiting from two extra hours per school day—300 hours per year—devoted to core academics, enrichment activities, interactive projects, small-group tutoring, and teacher planning and professional development.[80] Students are provided with broader and deeper coverage of curriculum, deepened relationships, increased "time on task," and more experiential learning.[81] It is expected that this model will provide gains in the future, especially since the state has adopted a "no excuses" attitude regarding student achievement and addressing the achievement gap.

Leaders in Massachusetts are aligned regarding the state's need to close achievement gaps, remain competitive internationally, and support ongoing leadership within the education system. However, the abundance of initiatives being introduced and the need for them to be implemented at the local level puts a lot of pressure on the districts. In addition, some stakeholders are passionate about retaining small class sizes at the expense of other initiatives. However, the Commissioner emphasizes that there are children currently in the system and an ongoing need to address achievement gaps and performance deficiencies.[82]

New Jersey

New Jersey has been consistent in its quest for clear, high standards since the state adopted its first set of standards in 1996. The state initiated performance assessments in 2003 through its funding of the New Jersey Performance Assessment Alliance, a state-wide consortium tasked with the development of performance assessments across multiple grades and content areas. The Alliance has trained New Jersey teachers to develop, score, and analyze assessment results in several core content areas.[83]

In 2007, New Jersey implemented *Learnia*, an online formative- and benchmark-assessment platform, to enable teachers to have daily formative-assessment tools. The data analysis and reporting tools allow teachers to adapt instructional techniques based on student needs and performance to improve student outcomes.[84] For the LEAs that are utilizing the *Learnia* system, a recent study of third to eighth graders found that student achievement improved.[85] In 2008, the Department of Education revised the standards for the third time to align with the Common Core Standards Initiative and incorporate the rigor and principles of the RTTT guidelines. In 2009, the State Board expanded these standards to lower grades and to additional content areas.[86]

New Jersey has implemented a growth model that is based on the estimation of student growth percentiles for each student using two consecutive years of test results on the New Jersey Assessment of Skills and Knowledge (NJ ASK). Student-level results are available for each individual student to allow educators to target instruction and interventions to bring students up to a level of proficiency.[87] Parents are also better able to understand the change in a student's year-over-year achievement. Beginning in the 2013-14 school year, New Jersey will be implementing a new growth model, known as AchieveNJ. This new model will establish Student Growth Percentiles (SGPs) based on assessments of students in grades four through eight who take the NJ ASK test. SGP scores—which compare a student's year-over-year academic growth to the growth of peers with a similar achievement history—will also be used to assess teachers and principals.[88]

A committee built around a public-private partnership is driving a Secondary Transformation initiative to increase graduation requirements, align content standards with college and career readiness, and adopt supportive policies. Based on the High School Redesign program that emanated from the 2005 National Education Summit on High Schools, Secondary Transformation encourages rigorous standards and College Preparatory program completion by all students.[89] Standards in seven content areas have been revised to provide more rigorous requirements academically, technologically, and globally.[90]

EXCELLENCE IN INSTRUCTION

According to Sara Shelton, Senior Policy Specialist at the National Conference of State Legislatures (NCSL), research has shown that as much as 60 percent of student achievement can be attributed to the effectiveness of the teachers and principals within a given a school. Principals contribute to 25 percent of this effect due to their influence on teacher quality through recruitment, development, and retention of effective teachers, and the dismissal of less effective ones.[91] Economist Eric Hanushek of Stanford University's Hoover Institution posits that replacing the least effective eight percent of teachers would increase student achievement to a level such that the U.S. would be ranked on the same level as Finland.[92] In addition, Hanushek suggests that this would also increase the U.S. GDP growth rate by more than one percent, amounting to as much as a present value of $112 trillion.[93]

The following discussion highlights research regarding some of the main influencers on teacher quality: induction, professional development, certification, and evaluation. Case studies illustrating innovative approaches to some of these critical facets of the teaching profession are provided from Utah's peer and benchmark states. Several of these programs were emphasized in the interviews with state officials or in the states' Race to the Top applications. New programs in teacher tenure, compensation, and retention are also discussed.

Teacher Induction, Mentoring, and Professional Development

Liam Goldrick and other policy analysts at The New Teacher Center—a national non-partisan non-profit organization dedicated to improving student learning by accelerating the effectiveness of new teachers and school leaders—recommend a number of policy criteria to raise the likelihood that new educators receive induction and mentoring support resulting in greater effectiveness.[94] For example, Goldrick recommends that new teachers participate in a mentoring program to improve their skills within the first three years of their careers.[95] In addition, Goldrick advocates that states implement a rigorous mentor selection process that reviews a candidate's teaching experience, communication skills, and teaching performance. Policy should also dictate how mentors are assigned to mentee teachers, advocate for ongoing professional development for mentors, and set limits on mentor caseloads.[96]

Such mentoring and coaching programs are becoming more prevalent as a complement to induction and professional development offerings. Some states are pairing mentors with teachers who have similar teaching environments and class assignments and are including mentor training as a fundamental component of professional development programs. Other states are creating full-time mentorship positions or allowing high-quality teachers to be excused from some teaching responsibilities to fulfill mentorship responsibilities.[97] These programs require dedicated funding and must be evaluated on an ongoing basis through surveys, site visits, and self-reporting.[98]

The findings regarding the effect of professional development on teacher effectiveness are mixed. One study conducted over a four-year period showed some positive effects of teacher professional development in math and science content areas that included training in pedagogy. In addition, researchers found that a focus on teacher skills, alignment with state and district standards, teaching methods, and a practical in-school component resulted in significant positive effects.[99] Other researchers have found that bringing teachers together in grade-level teams to build knowledge, design instructional activities, and observe colleagues also improved the success rate of professional development. In each of the promising cases studied, schools were a key partner in implementing and delivering the professional development.[100]

In contrast, other studies have shown that intensive professional development can affect teacher practice but has little impact on student learning or achievement.[101] Tabitha Grossman of the National Governors Association posits that current professional development programs are typically determined by administrators or teachers who decide what they want, as opposed to what student performance data or teacher evaluations specify is needed. Some surveys have indicated that many teachers find professional development irrelevant to their work in the classroom or incapable of meeting their individual development needs. Frequently, professional development does not provide ongoing feedback or the tools to implement the concepts introduced in the training.[102]

Therefore, Grossman recommends that professional development be assessed according to its impact on student achievement and not merely on improvements to teacher practice. Professional development may be most appropriate as a response to teacher evaluations and for developing individualized improvement plans.[103] She also suggests that states change licensure regulations so that professional development is tied to research-based standards for licensure or certification. The quality of training programs can be increased by evaluating which types of programs affect student learning and by developing individualized professional development plans based on regular, consistent teacher evaluations and a need for more in-depth content knowledge.[104]

Case Studies: Peer States

Minnesota

Seventy-five percent of Minnesota school districts report having an induction program. Nearly half of the districts indicated they provide mentor support in lesson planning and increasing content knowledge, but only 54 percent said they provide training for mentors in coaching and observation techniques.[105]

One of the five components of the Minnesota Quality Compensation for Teachers (Q Comp), Minnesota's teacher compensation program, is professional development. Training is selected based on student data and alignment with student needs. Incentives to complete additional professional development are reinforced by the Teacher Advancement Program, which enables teachers to earn higher compensation and assume greater responsibilities as teacher leaders.[106] Staff development, led by specialists, mentors, or career-ladder teachers, occurs weekly through cluster meetings organized by grade or content area. Teachers learn new instructional strategies and receive feedback from mentors and coaches as strategies are implemented in the classroom.[107]

Minnesota, North Dakota, South Dakota

In 2009, the Bush Foundation dedicated $40 million over ten years to support 14 teacher preparation programs in Minnesota, North Dakota, and South Dakota.[108] The program, known as Network for Excellence in Teaching (NExT), focuses on recruitment, preparation, and placement of well-prepared teachers.[109] The initiative is intended to assist colleges in recruiting higher quality students, provide them with more in-class experience prior to graduation, and track their teaching effectiveness in their early career years. Mentors are provided to novice teachers during these early years and in turn, provide feedback to colleges on how to better train new teachers.[110]

Initial results from the program have been positive. A number of institutional partners have redesigned their teacher preparation programs to incorporate more relevant and rigorous coursework and have cultivated relationships with K-12 districts. All of South Dakota's public universities are implementing full-year student teaching requirements based on a pilot program at the University of South Dakota. Nearly 4,000 teachers have moved through the NExT training program since its inception.[111]

Montana

Montana defines mentoring as a "special competency area" and leverages the state's Teacher Mentor Program Development as a component to reach their 100 percent highly qualified teacher goal, as defined in NCLB. This program allows early career teachers and administrators to be supported for the first year of practice through weekly meetings with mentors. In addition, mentees undergo quarterly observations from mentors that have a track record of improving student achievement.[112]

In conjunction with the rollout of new science standards, Montana has mandated selective training through a network of five Regional Professional Development Outreach partners. The Montana Math and Science Teacher Initiative (MMSTI) strives to improve the recruitment and retention of highly qualified math and science teachers by increasing awareness of the importance of math and science, fostering the development of math and science teachers, and recruiting potential teachers from STEM disciplines.[113]

North Dakota

Over the past nine years, the eight Regional Education Associations—a group of school districts serving 98 percent of North Dakota students—have taken a greater role in professional development. Some per-pupil funding has been allocated, along with $25 million in grant funding. Professional development professionals, such as instructional coaches who model lesson delivery and research-based instructional methods within the school setting, are now being tapped as support resources.[114] This additional training has proven both popular and successful among the teaching staff.[115] North Dakota has also established a Teacher Support System Grant Program that establishes a minimum amount of contact time between the mentor and mentee on a weekly, per semester, or yearly schedule.[116]

South Dakota

South Dakota has established a state-wide, virtual mentoring program for novice, first-year teachers. In the first year alone, approximately 100 mentees were mentored by 50 mentors across the state.[117]

Case Studies: Benchmark States

Massachusetts

Because of the expansion of available student data, educators in Massachusetts must undergo a six-course sequence of training on effective data use to complete licensure requirements. Results show that this investment in training and job-embedded activities encourages users to incorporate data use as part of daily teaching practice.[118] Another requirement for licensure is the creation of an individual professional development plan. In the effort to close the achievement gap, the state also delivers training through several channels—public and private vendors, online, and instructor-led—on content areas where there is a high need for effective teachers.

In 2010, Massachusetts established Professional Learning Communities (PLCs) to inform on best practices and needed practice improvements. Comprised of administrators, teachers, and school staff, PLCs are formal groups that meet collaboratively to develop strategies for improving student learning and achievement. Learning walks—observations within the school building by PLCs—focus attention on instruction and teaching practices, enable ongoing data gathering and feedback, and inform local decision-making.[119] In addition, Learning Walks can help educators assess the presence of conditions that foster school effectiveness, and connect results, such as test scores, to specific classroom activities.[120] Dr. Shirley Hord of Southwest Educational Development Laboratory has cited positive outcomes for teachers due to PLCs, including increased commitment to school mission and goals, improved teaching and classroom practices, higher teacher morale, lower staff absenteeism, and a greater ability to undertake fundamental changes. Hord also found that students have experienced more equitable learning, academic gains, and decreased dropout rates and absenteeism.[121]

New Jersey

Over the past 13 years, New Jersey has developed a rigorous, content-based professional development program for all staff as they move through their careers from novice to veteran educator.[122] Standards specifically mention the use of research-based professional development that has illustrated the ability to improve student learning.[123] State law mandates that novice teachers be assigned a mentor when they have been contracted for a teaching assignment. Mentors must have at least three years of district experience, show exceptional content and pedagogical knowledge, and agree to complete mentor training, among other requirements.[124] School leaders are required to develop a professional growth plan, set goals, and complete a report every three years that aligns with professional standards and individual professional development needs. In addition, LEAs and schools must evaluate the impact of the training on teacher effectiveness and student achievement and provide evidence that the training is focused on improving student learning. At the individual level, teachers must document their learning and application of that learning through their professional development plan. The requirements have been enhanced in the past year to incorporate Professional Learning Communities (PLCs), in which teams collaborate at weekly meetings to discuss areas for improvement within the school.[125] New Jersey supports these requirements through an interactive website that includes standards, assessments, and support materials for teaching, learning, and assessment.[126]

Teacher Licensure and Certification

Researchers have not reached a consensus with respect to the characteristics or background that will predict the effectiveness of a teacher in the classroom. Credentials, experience, level of education, and certification exam scores are not clear predictors of teacher effectiveness. Research has shown that having a master's degree or attending a more selective university has little impact on teacher effectiveness in the classroom, despite the fact that five states require a master's degree for permanent certification.[127] Hanushek also cites evidence that teacher certification, salary level, or choice of teacher training program has little effect on student learning.[128]

However, National Board for Professional Teaching Standards (NBPTS) certification is recognized for identifying more effective teachers.[129] The NCSL cites numerous studies that indicate that NBPTS certification results in better teacher practice, professionalism, and longer teacher tenure. In addition, some studies have found that students of board-certified teachers outperform students of non-certified teachers[130] and that classrooms that have a certified teacher are shown to have higher student achievement along many dimensions, including ethnicity, income, parental education, and previous test scores.[131]

Many states, especially those needing workforce resources for typically hard-to-fill content areas or geographic locations, have introduced alternate routes to licensure. These programs enable states to ensure a continuing supply of teachers and address teacher shortages, while providing second-career candidates an opportunity to become teachers without returning full-time to a post-secondary institution.

Matthew Chingos of the Brookings Institution and Paul Peterson of Stanford's Hoover Institution cite empirical studies that have found no significant difference in effectiveness between traditionally-

licensed teachers and those who followed alternative routes to licensure.[132] However, critics of these programs are concerned that reduced requirements may degrade teaching quality and introduce teachers into the classroom who are not adequately prepared.[133] Some studies have shown that there is a statistically significant negative average effect on student achievement when teachers practicing with an alternate route license are in their early career years.[134]

Teach For America (TFA) is one program that has been leveraged by a number of states including Colorado, New Jersey, South Dakota, and Minnesota. Studies have shown that students of novice TFA teachers underperform in both reading and math as compared with students of novice credentialed teachers, but that more experienced TFA teachers perform as well or better than experienced credentialed teachers. However, more than 50 percent of the TFA teaching force leaves the program after just two years and more than 80 percent leave after three years, resulting in significant recruiting and training costs for new teachers and possible disruption in student growth.[135]

Case Studies: Peer States

Colorado

Since 1990, Colorado has allowed teachers to pursue alternative routes to licensure through designated agencies. Beginning in 2000, the state authorized two-year teacher-in-residence programs, which enabled school districts to meet their hiring needs. Since 2009, one-year and two-year programs have been offered for candidates that hold a baccalaureate degree. Candidates teach full-time during the program, receive performance evaluations, and undergo more than 200 hours of additional training. In 2004, alternative routes to principal licensure also became available. Designated agencies include organizations such as Teach For America, private and charter schools, school districts, private entities, and post-secondary institutions.[136]

Starting in 2007, Colorado has taken advantage of the TFA program as an alternative teacher preparation provider. Several hundred TFA corps members have been deployed to high-need Colorado schools and districts. Studies by both the Urban Institute and the Broad Foundation show that the TFA program in Colorado has had a positive effect on student growth and achievement.[137]

Minnesota

Minnesota offers alternate routes to licensure for both teachers and principals. Enrollment in the TFA and Twin Cities Teaching Fellows (TCTF) programs has risen 60 percent since inception in 2008. While completing their licensure, teachers from the TCTF program are placed in high-need schools to instruct hard-to-staff subjects such as secondary math and science, special education, and world languages.[138]

Montana

In Montana, the Superintendent of Public Instruction can issue an alternative three-year license that can eventually lead to a regular license. Montana's Northern Plains Transition to Teaching program is a two-year distance-learning course of study enabling the transition into the teaching field from other careers. Participants must hold a baccalaureate degree in one of Montana State University's Teachable Subject Areas, possess five years of work experience showing progressive responsibility, and have a career track record. Candidates obtain "student teaching" experience through on-the-job, part-time, salaried teaching positions. In addition, an increasing number of American Indian school leaders have been licensed through the Indian leadership and development program sponsored by Montana State University, which trains candidates to serve the unique needs of students on or near Montana reservations.[139]

Case Studies: Benchmark States

Massachusetts

Fifteen percent of newly licensed teachers in Massachusetts come into the profession through one of 39 different alternate routes to licensure. Providers of alternate route programs include school districts, higher-education institutions, professional associations, and non-profit organizations. Candidates receive a streamlined path to licensure and earn the same license as those in traditional preparation programs. Career changers can transition to teaching via the Panel Review or the 300-hour Administrative Apprenticeship administered by a school district and supervised by a mentor.[140]

New Jersey

New Jersey was the first state to offer alternate routes to licensure, with the launch of the Provisional Teacher Program in 1985. Contributing to the success of this nationally-recognized program has been the rigorous selection criteria used to identify candidates, the ongoing support and supervision provided to candidates, and the number of qualified providers that can certify candidates.[141]

In 2000, the New Jersey Department of Education became aware that as many as one-third of their teachers would be retiring within the decade. The Teacher Recruitment Initiative was established with the goal of increasing the quantity and improving the quality of New Jersey's teaching force. The state further expanded alternate-route licensure programs for high-need LEAs and content areas.[142]

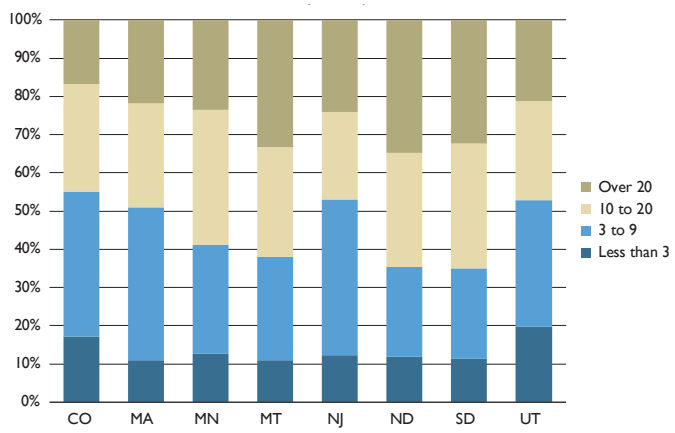
Approximately one-third of New Jersey teachers have been licensed through alternate route agencies, which include Teach For America, higher education institutions, and LEAs. Candidates must hold a bachelor's degree and a Certificate of Eligibility, which is issued upon completion of the Praxis II exam in a specific content area. Newly-licensed teachers must complete 200 hours of approved teacher-education coursework, receive on-the-job mentoring and evaluation, and provide documentation of instructional competency. Once the candidate's provisional teaching year has been completed, the teacher may be recommended by the principal for standard licensure.[143] New Jersey has also developed the Garden State Urban Teacher Residency Program to attract and retain teachers in specialty and hard-to-staff content areas. Fifteen institutions in urban communities provide flexible alternate route options for candidates to gain licensure and "highly-qualified teacher" status.[144]

Since 2003, the state has offered alternate preparation paths for school administrators, principals, and school counselors. This widely-recognized program alleviates shortages of qualified and minority principals and staff in districts with low-performing schools.[145]

Teacher Tenure, Retention, and Compensation

Teacher recruitment and retention is a concern in many states. Fifty percent of teachers are expected to retire in the next decade. In addition, one-third of new teachers leave the profession within the first three years and half leave shortly after their five-year anniversary.

Figure 13: Percent of Teachers by Years of Full-Time Teaching Experience, 2007-08



Source: NCES.

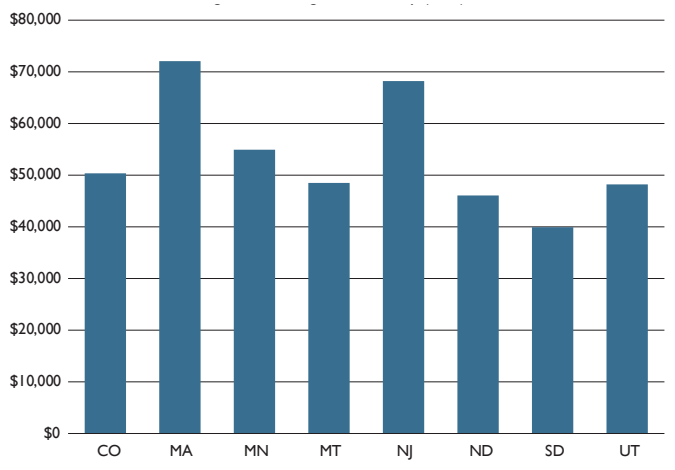
Turnover across the country averages nearly 17 percent, costing the nation an estimated $7 billion per year.[146]

As illustrated in Figure 13, Utah has a comparatively novice teacher workforce, with nearly 20 percent of teachers having fewer than three years of experience. This is due in large part to increasing student enrollment.

Chingos and Peterson assert that a positive relationship exists between teacher service years and student achievement. This is partly due to attrition of less effective teachers in the early years of their careers. Some studies indicate that the positive correlation between effectiveness and experience peaks after about five years of teaching experience, while others suggest that the correlation remains positive for up to 25 years before leveling off.[147]

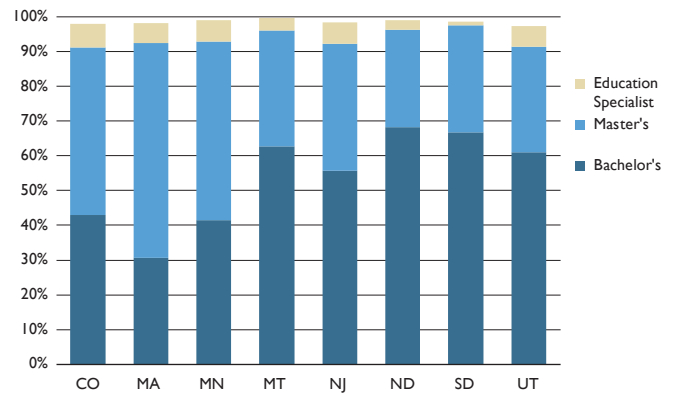
One lever that principals employ for retaining and rewarding effective teachers is classroom assignment. Research studies consistently show that a teacher's level of education, experience, gender, ethnicity, and effectiveness predict the types and number of students and the level of content they are assigned.[148] More challenging and larger classes are frequently assigned to female, minority, and novice teachers,[149]

Figure 14: Average Annual Teacher Salary, 2012



Source: National Education Association, Estimates of School Statistics (April 2012).

Figure 15: Highest Degree Earned by Teachers, 2007-08



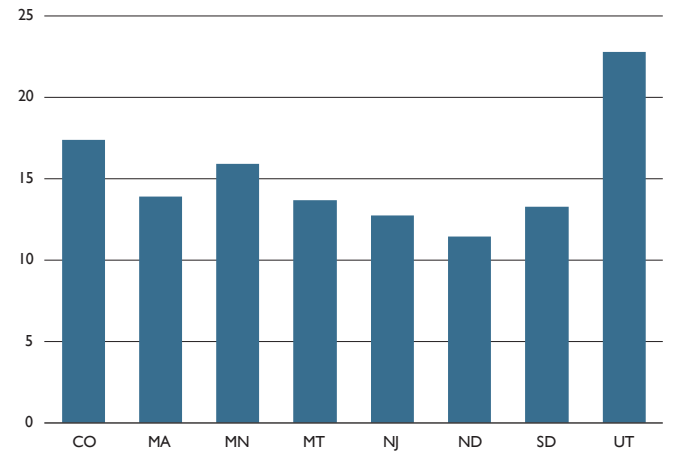
Source: NCES.

while teachers with stronger credentials are hired into schools and assigned classes with higher-performing, more advantaged students.[150] In addition, novice teachers tend to be assigned students with lower achievement, more behavioral problems, and greater absenteeism.[151] Therefore, disadvantaged and minority students are less likely to receive instruction from more experienced, qualified, and effective teachers. This, in turn, can intensify the achievement gap that exists within districts.[152]

The National Council on Teacher Quality (NCTQ) issued a report highlighting how rigorously states consider student achievement in decisions to grant tenure to novice teachers. Colorado, Massachusetts, and New Jersey consider student learning outcomes prior to awarding tenure, while the other peer states typically award tenure automatically upon the completion of a number of years of service—typically three years.[153]

Teacher salaries are, for the most part, determined by tenure and post-secondary studies completed. Therefore, because more than 85 percent of teachers have at least three years of teaching experience,[154] salaries continue to rise regardless of whether student achievement is also rising. Increasing salaries is one lever that states use to both attract and retain educators in the workforce; compensation levels are seldom driven by economics or linked to student outcomes.[155]

Figure 16: Average Pupil/Teacher Ratio, 2010-11



Source: NCES.

Although there is little to no evidence that an advanced degree has a positive effect on student learning, 17 states provide additional compensation to teachers with master's degrees and nearly half of all public school teachers have advanced degrees.[156] Therefore, the national expenditure in 2007 on bonuses for advanced degrees amounted to approximately $19 billion, although there was no definitive evidence of impact on student growth.[157]

A number of states have experimented with the concept of merit pay for teachers, which rewards teacher productivity and performance, especially as it relates to improved student growth and achievement.[158]

Pupil/teacher ratios and class sizes may have some impact on both student achievement and teacher retention. As highlighted in Figure 16, Utah has a considerably higher pupil/teacher ratio than all of the other peer and benchmark states. Researchers have observed that children learn better in smaller classes, teachers are more satisfied in their jobs, and discipline problems decrease.[159] Small class sizes have also been shown to provide more advantages to lower-income and non-White children due to the increased amount of time spent on individualized instruction and student-teacher interactions.[160] However, a California study found that the decrease in class size was accompanied by a significant decline in teacher qualifications—especially in lower-performing schools and districts—further exacerbating the issue of low teacher quality and greater achievement gaps.[161]

Case Studies: Peer States

Colorado

After the school board voted to no longer negotiate with the teachers' union, a market-based, performance pay scale for new hires was introduced in 2010 in the Douglas County school district, the third largest in the state. All district teachers will be affected by this pay structure this year. Pay is determined by factors such as prior experience, salaries in other districts, subject and grade taught, and supply-and-demand of specific teaching positions. Merit pay is determined based on student performance data and district-designed teacher evaluations,[162] which results in teachers receiving a rating of highly effective, effective, partially effective, or ineffective. However, the teachers union for the district is appealing the evaluation system, claiming the system is invalid and unreliable.[163]

The Denver Public School district and the local teachers union partnered to design a district-wide compensation program, Professional Compensation for Teachers (ProComp). Teachers that elect to participate in the program have the opportunity to receive additional pay for a number of activities or achievements, such as earning advanced degrees or certifications, accepting a position in a high-need school, and improving student achievement. However, a 2008 study by the University of Colorado did not uncover evidence that ProComp participants improved student achievement at a greater rate than non-participants.[164] This lack of conclusive evidence may be due to the newness or limited implementation of the program or to the small difference in pay.[165]

Montana

Montana's educational philosophy restricts the state from linking teacher evaluation and compensation to student achievement. In addition, since the state has received no Race to the Top funding or NCLB waivers, there is no requirement or incentive to implement such a program.[166]

Minnesota

The five-part Q Comp Program highlighted above was enacted in 2005 and is designed, customized, and administered at the local level. The program encompasses career advancement options for effective teachers, job-embedded professional development, teacher evaluation and observation, bonuses based on multi-measure performance indicators, and an optional alternative salary schedule tied to student outcomes.[167] The program has been adopted by LEAs representing one-third of Minnesota students and is included in collective bargaining agreements.[168] Q Comp performance pay is designed to address low starting salaries, caps on salary increases for experienced teachers, and the typical "steps and lanes" salary schedule that is based on years of service and course credits. Q Comp aligns 60 percent of teacher compensation with professional growth and teaching practice—as determined by classroom observations and lesson evaluations—and student achievement, as measured by standardized tests and state-wide assessments.

A 2008 third-party evaluation of the Q Comp program showed "a significant and positive correlation between the number of years a school has been implementing Q Comp and student achievement."[169] Program proponents assert that Q Comp contributes to student achievement by developing the capabilities of educators and by encouraging teacher leaders to rethink how schools and districts should operate. However, opponents are concerned that evaluation criteria are not consistent or fair and that the system may breed competition or resentment among colleagues.[170]

South Dakota

The ability to retain highly-qualified teachers in South Dakota is affected most greatly by the large percentage of rural schools requiring teachers to be highly qualified in multiple subjects and to be geographically isolated. It is also difficult to retain highly qualified teachers in low-performing schools that have predominantly minority and low-income students.[171] Funded by a five-year $20 million grant from the U.S. Department of Education, South Dakota initiated INCENTIVES*plus*, an incentive system that rewards principals and educators with bonuses and training for gains in student achievement in disadvantaged districts. In addition, another program goal is to increase the number of highly qualified teachers to 100 percent in hard-to-staff areas. More than 40 Title I schools in mainly rural school districts have benefited from the project through the recruitment of more highly skilled educators. A complementary project, the Dakota Corps Scholarship program, also attempts to staff hard-to-fill positions in high-need areas of the state with qualified teachers and personnel.

Case Studies: Benchmark States

New Jersey

The Newark school district implemented a mandatory "Universal Salary Schedule" for all new hires and current teachers with bachelor's degrees. Additional pay is no longer awarded for master's degrees, but can be granted in response to a stellar evaluation rating. Bonuses are also available for educators evaluated and deemed "highly effective."[172]

Staff Quality and Evaluation

NCLB required that, by 2006, all teachers in schools that received compensatory education funding be deemed "highly qualified." This designation required that a teacher possess a bachelor's degree, a

state teaching license, and demonstrated competence in the specific content areas that he or she is instructing.[173]

A study of teacher mobility in Florida showed that the most effective teachers who remain in the profession are more likely to also remain in their current position than move to another school in the same district. When teachers do change schools, they tend to move to higher-achieving schools with fewer low-income and minority student populations. Therefore, the movement of teachers across schools and districts can exacerbate already existing differences in teacher quality and increase the achievement gaps between more affluent, White students and lower-income and minority students.[174]

The NCTQ has assessed states' ability to identify teacher quality. Of the peer and benchmark states, most states evaluate all teachers annually and consider evidence of student learning in teacher evaluations. However, only Colorado uses student achievement as a key criterion in teacher evaluations. There is ongoing controversy regarding the practice of tying teacher evaluation to student test scores. Proponents believe that effective teaching can and should be measured by state test scores and that these metrics should contribute up to 50 percent of a teacher's evaluation, while opponents point out that as many as 80 percent of teachers instruct untested subjects.[175]

The American Association of School Administrators recommends that teacher evaluations be deployed by states to differentiate among specific performance levels, continually improve instruction, provide timely and useful feedback, inform personnel decisions, and ultimately improve instruction.[176] Similarly, Michelle Exstrom, a policy analyst for NCSL recommends that states develop evaluation systems that use multiple valid and reliable measures of student performance, establish clear performance expectations and associated metrics, link evaluation to recommended professional development, and draw input from key stakeholders regarding the evaluation process. In addition, she recommends that educators of untested subjects also receive a fair and useful evaluation, that training of evaluators be required to ensure that measurements and observations are conducted consistently and accurately, and that opportunities for improvement are offered for ongoing performance issues. If the evaluation system is being executed effectively and fairly, districts can justify the use of evaluations to determine merit pay, salary levels, and ongoing licensure.[177]

With respect to principal evaluations, Shelton posits that implementing principal evaluations will ensure that they are held accountable for teacher effectiveness, student progress, leadership skill development, and reducing achievement gaps.[178] Shelton recommends that states provide robust leadership standards, develop a framework and criteria for evaluation, require a linkage between evaluation and school improvement, require that evaluations be data-driven, and provide adequate funding for consistent execution.[179]

Case Studies: Peer States

Colorado

In Colorado, teachers may receive "non-probationary" status and tenure in their fourth year of teaching. However, teachers may still be dismissed for unsatisfactory performance. To assess teacher effectiveness and professional development needs, annual evaluations take into account multiple performance ratings and student growth data. The Educator Effectiveness Index, introduced in 2011, measures the concentration of effective teachers and principals throughout the state.[180]

Legislation passed in 2010 required that a new evaluation system be piloted in 2012-2013 and implemented state-wide in 2013-2014. The new system will base at least 50 percent of a principal's evaluation on student academic growth and the level or improvement in the effectiveness of his or her teachers.[181]

Minnesota

As part of the Q Comp program highlighted above, Minnesota implemented the national Teacher Advancement Program model, an integrated and comprehensive school reform initiative focused on providing teacher leadership opportunities, job-embedded professional development, and performance-based compensation for teachers in Minneapolis Public Schools. The program reaches several hundred teachers in the Minneapolis school district with the intent of increasing student achievement through the recruitment, motivation, development, and retention of high quality teachers.[182] According to the federal highly qualified teacher requirement definitions of NCLB, 97.4 percent of Minnesota teachers are highly qualified.[183]

In 2011, the Minnesota legislature mandated the implementation of performance-based evaluation systems for principals. The system evaluates and seeks to improve instructional leadership, organization management, and student learning through an alignment with professional development and performance standards.[184]

Along with other states, including Massachusetts, Minnesota has adopted the research-based program of the National Institute for School Leadership that was designed by the National Center on Education and the Economy. This program helps principals leverage leadership best practices from various fields and industries. The program is delivered through workshops, seminars, in-person instruction, and web-based courseware.[185]

Montana

The Montana Office of Public Instruction has developed strategies to ensure that all Montana teachers in core content areas meet the NCLB definition of "highly qualified" and to track the placement of these teachers.[186] In 2008, the Montana Math and Science Teacher Initiative, with a stated mission of improving recruitment, training, placement, and retention of highly effective teachers in math and science, established partnerships with universities, business and industry, and state agencies to create a state-wide data collection system, a professional development academy, and a program that connects teachers with STEM internships.[187]

Montana is also addressing the issue of low-income and minority students being taught by less experienced and less effective teachers. Schools and districts with larger numbers or percentages of disadvantaged or minority children are identified and the state determines the ratio of experienced and inexperienced teachers that have been hired into these districts and schools. Those schools are then provided with intensive assistance, guidance, and monitoring to help them meet AYP and highly qualified teacher metrics.[188]

North Dakota

In the recent past, teacher evaluation was designed at the local level and was inconsistent across districts. Recently, North Dakota adopted the INTASC standards and the Danielsen and McREL models of

teacher evaluation. Districts and schools may select one of the models or create their own evaluation system.[189]

South Dakota

In 2004, in response to the absence of certified leadership in some school districts, the state of South Dakota passed legislation that required all principals and superintendents to be certified by 2008.[190] More recent legislation mandates training for anyone involved in conducting teacher and principal evaluations and requires that evaluations serve as a basis for professional development and staff remediation.[191]

Case Studies: Benchmark States

New Jersey

Since 2011, New Jersey has taken student progress into consideration as a component of its teacher evaluation system. Teachers are evaluated annually based on instructional priorities, teacher performance, program objectives, and student progress.[192]

Both tenured and non-tenured teachers must submit a professional development plan to address areas needing improvement, increase focus on student learning, and support professional growth.[193] Non-tenured teachers must establish this plan within 60 days of employment. In addition, three evaluations and observations per year are required to develop a picture of the new teacher's performance, including areas of strength, areas needing improvement, indicators of student progress, and overall teaching effectiveness.[194]

The current New Jersey administration has been in office for three years and has been working to gain buy-in from different groups, such as the teachers union, to pass reforms. Legislation to change the tenure and retention policy successfully passed last year and there are now intense discussions regarding the role of teacher evaluations, test score data, teacher quality, and Common Core implementation.[195] Beginning in 2013, the state will deploy AchieveNJ, a unanimously supported teacher evaluation system. Student growth and teacher practice will be evaluated through three observations per year to derive effectiveness scores and create Corrective Action Plans for "Partially Effective" or "Ineffective" teachers.[196]

EARLY CHILDHOOD PROGRAMS

Preschool Programs

There has been a great deal of controversy regarding claims of positive outcomes and returns on investment from preschool programs. However, education researchers Daniel Princiotta and Ryan Reyna of the National Governors Association Center for Best Practices cite recent study findings that attending a quality preschool program boosts graduation rates among disadvantaged students as much as 15 percent.[197] Researchers at the Center for Business and Economic Research at Marshall University highlight near-term benefits such as job creation, reduction of worker absenteeism due to reliable childcare, and expansion of the labor force. Long-term benefits include a reduction in the need for remedial and special education services, decreased crime, improved high school graduation rates, and better prospects for participants' siblings.[198] In addition, the Chicago Longitudinal Study by the University of Minnesota reported a $7.14 to $1 benefit-cost ratio. Other economists have estimated benefits to be equally high, while Oklahoma's universal preschool program estimates the benefit to be closer to $3 or $4 to $1 ROI.[199]

However, Whitehurst reiterates previous findings that show that Even Start programs have no effect on child outcomes, and that Head Start programs improve letter naming but have no noticeable effects on children's vocabulary.[200] The National Head Start Impact Study acknowledges that Head Start programs have few effects on children from kindergarten through third grade, but that the program does improve preschool outcomes during participants' preschool tenure.[201]

In response to President Obama's recent preschool policy proposals, W. Steven Barnett, Director of the National Institute for Early Education Research (NIEER) at Rutgers University, summarized literature meta-analyses of recent years and found that cognitive gains and social and emotional development from preschool programs increase when programs focus on small group learning and individualized teaching. Long-term gains may include less grade repetition, fewer special education placements, and higher high school graduation rates.[202] Although preschool programs are expected to provide greater benefits for disadvantaged children, higher-income children may still receive considerable benefits from these programs. For example, Barnett highlights the Neidell & Waldfogel 2010 study that finds that spillover benefits continue through third grade for children who have classmates who have attended preschool.[203]

The United Way of Salt Lake, the Granite School District, and Voices for Utah Children conducted a longitudinal study of the outcomes of the preschool programs that were initiated in 2006-2007 for children at risk of needing special education services. Findings suggest that 95 percent of three-year-olds attending such a program avoid the need for special education services from kindergarten through third grade, a cost savings of approximately $1 million.[204] Other research has shown that at-risk students who participate in high-quality preschool programs require fewer special education services through the twelfth grade, providing significant cost savings to state and federal agencies.[205]

Figure 17 summarizes the state-funded preschool programs in the peer and benchmark states. Montana, Utah and the Dakotas do not have state-initiated preschool programs, although North Dakota has introduced a readiness program for future kindergarten students and their parents.[206]

Case Studies: Peer States

Colorado

Colorado invests $67 million annually in the voluntary Colorado Preschool Program as part of its "Start Strong Early" philosophy.[207] Authorized in 1988, the program delivers an early childhood and

Figure 17: Preschool Programs in Peer and Benchmark States, 2011-12

State	Year Started	Name/Description of Program	Average Funding per Child	2011-12 Enrollment	Percent of 4-year-olds Enrolled In State Pre-K
Colorado	1988	At-risk 3- and 4-year-olds	$3,329	20,160	21%
Massachusetts	2005	Universal: 33 months to Kindergarten age	4,058	13,139	14.3%
Minnesota	2005	Supplemental funding for Head Start and Early Start	7,592	1,731	1.2%
New Jersey	1999 and 2004	Abbott Schools and Non-Abbott Early Childhood program	11,659	51,540	28.2%

Source: Rutgers Graduate School of Education.

school readiness curriculum through preschools, Head Start centers, and community programs. The program serves nearly 20,000 at-risk children within 96 percent of the state's school districts, although an estimated 8,000 eligible children are still not funded.[208] Research has shown that the program is helping to close achievement gaps[209] and is making a difference in third and fourth-grade test scores.[210] For example, program participants scored 15 points higher on the state-wide assessment in fourth-grade reading and 20 points higher in fourth-grade math than their peers who did not participate in the program. If a 2013 ballot initiative is passed, additional investment will be provided to expand the program based on these positive outcomes. Districts that do not currently offer the program will be given priority if additional funding is granted.[211]

Minnesota

Early learning is a major initiative in Minnesota, with the goal being readiness for kindergarten. Stakeholders from early learning through post-secondary education strive to graduate all students from high school with appropriate knowledge and skills.[212]

Based on a study by Art Rolnick and Rob Grunewald of the Federal Reserve Bank of Minneapolis, Minnesota began offering preschool programs through the public schools. The study asserts that dollars invested in early childhood development "yield extraordinary public returns," compared to investment in, and subsidies for, business.[213] A review of the Perry School preschool program found a 12 percent internal rate of return and a 1:8 ratio of funds invested. The study estimates that as much as 80 percent of fiscal returns benefited society.[214]

Using funds from the RTTT grant, Minnesota offers school readiness programs for children ages three to kindergarten through the public schools. The programs assess each child's cognitive skills to inform program planning, develop social, emotional, and physical skills needed for the transition to kindergarten, and assist parents and teachers in coordinating the transition. Funding is determined by the number of four-year-olds from low-income families that reside in a district.[215]

In 2000, Minnesota published Early Learning Standards, which were aligned with the K-12 academic standards in 2005.[216] The Minnesota Early Childhood Indicators of Progress framework assesses three- to five-year-olds in the following six domains: social and emotional development, approaches to learning, language and literacy development, creativity and the arts, cognitive development, and physical and motor development.[217]

North Dakota

In 2006, North Dakota initiated the "Gearing Up for Kindergarten" program, a school readiness and parent education program.[218] This initiative offers educational classes on topics such as child development, school readiness, and healthy parenting to prepare both parents and their children for success in school.[219] Program participants surveyed have typically responded that the program increases their knowledge of child development and healthy parenting and results in changing their parenting behavior. Children participating in the program showed positive growth for 75 percent of the indicators tracked, which include positively interacting with others, functioning independently, managing emotions, and developing specific academic skills.[220]

Case Studies: Benchmark States

Massachusetts

In 2005, Massachusetts established the Department of Early Education and Care. In 2008 and 2009, the Education Action Agenda and accompanying Act Relative to Early Education and Care were enacted to assess and improve the quality of early education programs, develop a kindergarten readiness assessment system, create the Birth to School Age Task Force to support the healthy development of low-income children, and establish the universal pre-kindergarten program to promote school readiness.[221] Universal pre-kindergarten programs were piloted in 2007 with $4.6 million in state funding, a figure which grew to $8 million by 2010. The programs serve at-risk and low-income students through preschool centers, public and private schools, and family care concerns. The purpose of the program is to promote school readiness, encourage positive outcomes, and maximize parent choice.[222]

In 2003, Massachusetts adopted comprehensive preschool learning standards that cover content areas such as language arts, math, science, and health. Massachusetts is aligning these guidelines with the Common Core to develop Pre-kindergarten through grade 12 curriculum frameworks that outline learning objectives beginning at age three.[223]

New Jersey

New Jersey has earned a national reputation for the quality and outcomes of its state-funded preschool programs. As defined by the state, a high-quality preschool experience includes a full-day of comprehensive instruction, small class sizes, certified preschool teachers and assistants, a research-based curriculum, performance-based assessments, and supports for disabled and dual-language learners.[224] Through these high-quality programs, 80 percent of three- and four-year-olds who reside in the 35 lowest-income LEAs can develop the same skills and abilities as children in more advantaged districts.[225] Two discrete programs, with a maximum class size of 15 students and staffed by a teacher and several assistants, provide up to 10 daily hours of instruction, 245 days per year.[226]

Established in 1999, The Abbott Preschool Program was named for a court case in which the State Supreme Court mandated the implementation of high-quality preschool for all three- and four-year-olds in the 31 poorest school districts in the state. Additional legislation in 2008 mandated that the preschool program be expanded to all low-income children throughout the state.[227] Studies show that participants have earned higher test scores upon registering for kindergarten, and these gains have continued through to second grade.[228] In 2009, the state began focusing on early-childhood pedagogy, assessment and curricula, supports for dual-language learners, and the monitoring and improvement of early education practices. In addition, early childhood teaching certification requirements were expanded.[229]

New Jersey has outlined learning outcomes and associated teaching practices for preschool children and has aligned preschool standards with the Core Curriculum standards. These programs utilize formative assessments to inform instruction, undergo annual evaluations, and report on student outcome metrics. In addition, preschool children are included in the NJSMART database to enable school districts to track participants in preschool programs throughout their school careers.[230]

Recent research studies have indicated that New Jersey's programs provide benefits to students throughout elementary school.[231] The Abbott Preschool Program Longitudinal Effects Study (APPLES), which assessed fourth- and fifth-grade students who were alumni of the program, showed that performance improvements as high as ten percentile points in literacy, math, and science were detected.[232] The likelihood of in-grade retention decreased by 40 percent, while placement in special education declined by 31 percent.[233] In addition, the program was found to close the achievement gap between non-Whites and Whites by as much as forty percent.[234] Economic benefits of the programs can equate to as much as 40 percent of the cost of the preschool program.

To complement these programs, the state has co-sponsored institutes that teach principals and superintendents best practices in supporting preschool through third-grade K-3 classrooms.[235] According to the APPLES study, these institutes may be one key to the program's success.[236]

Full-day Kindergarten

Although only eleven states and the District of Columbia currently mandate their school districts to offer full-day kindergarten, these programs are gaining in popularity.[237] Working parents appreciate the flexibility that is provided, while teachers welcome the extra time for instruction and enrichment activities.[238] Typically, full-day kindergarten programs average 32 hours of class time in a five-day week. In a study conducted in 2005, Debra Ackerman of the Educational Testing Service along with Steven Barnett of NIEER found that fewer than 40 percent of students in half-day programs spent 60 minutes on reading, compared with nearly 70 percent in full-day programs. In addition, full-day participants spend more time in self-directed activities, which are linked with long-term learning.[239]

Research studies on outcomes related to full-day kindergarten have been ongoing since the 1970s. Early on, these studies did not consistently show positive outcomes from full-day kindergarten. However, research in the 1990s did show positive effects of full-day kindergarten for at-risk children, such as higher scores on standardized tests and positive future school performance in areas of literacy and math. Other studies have shown that full-day kindergarten programs contribute to improved promotion rates, but do not consistently confirm benefits with respect to special education placement.[240] A meta-analysis by Hanover Research cautiously suggests that the clearest benefits occur during the kindergarten year and may possibly extend into the early grades.[241]

Figure 18: Full-day Kindergarten (FDK) Programs in Peer and Benchmark States

State	Year Started	FDK Offering	FDK Required by Statute	2011-2012 FDK Enrollment	Percent of Kindergarteners Enrolled In State FDK
Colorado	2005	Yes	No	44,728	67%
Massachusetts	2000	Yes	No	56,264	83%
Minnesota	2014	Yes	No	28,076*	49%
Montana	2007	Yes	No	10,138	93.7%**
New Jersey	1999	Yes	Mandatory in Abbott districts	66,239	74%

*Number of kindergarten students receiving free, full-day, every day kindergarten; does not include the number of students whose parents pay tuition for full-day kindergarten.

**2008-09 school year data

Source: Children's Defense Fund.

Figure 18 highlights the full-day kindergarten programs that exist in the peer and benchmark states.[242] Utah and the Dakotas do not offer state-run full-day kindergarten programs.

Case Studies: Peer States

Colorado

In 2008, Colorado boosted kindergarten funding by eight percent to initiate the phasing-in of full-day programs. However, the great recession slowed the plan to appropriate an additional $10 million each year through 2014. A ballot initiative this year requesting $105 million in funding would restore the full-day kindergarten funding plan for every eligible child. In the meantime, full-day kindergarten is continuing to expand. In 2005-2006, only 28 percent of kindergartners were attending full-time; that number grew to 60 percent in 2009-2010. In Colorado, full-day kindergarteners receive 900 hours of instruction per year.[243]

Minnesota

Fifty-four percent of Minnesota families currently have access to full-day kindergarten.[244] $134 million has been appropriated to initiate universal voluntary full-day kindergarten in 2014. Districts will need to determine whether to offer the program and parents must elect to enroll. Minnesota cites a number of studies that have shown that full-day kindergarten improves literacy and increases outcomes in later grades.[245]

Montana

In 2007, Governor Brian Schweitzer together with the Office of Public Instruction and the State Legislature, began funding full-day kindergarten within Montana's public schools. This decision was based on research that found that providing full-day kindergarten reduces achievement gaps for low-income and minority groups, improves test scores in later grades, reduces behavior problems, and improves graduation and matriculation rates.[246]

Case Studies: Benchmark States

Massachusetts

In the 2012-2013 school year, 94 percent of Massachusetts school districts offered at least one full-day kindergarten class defined as at least five hours per day, five days per week, for 180 days per year. Nearly 75 percent of these districts offer full-day programs district-wide, which serve nearly 70,000 children. Seventy-three districts (25 percent) charged tuition—an average of $3,240 per child—for the full-day program option.[247] State funding in FY13 was just under $24 million, or $343 per child, down from nearly $34 million in 2008.[248]

Since 1999-2000, full-day kindergarten has been supported through Kindergarten Expansion Grants. The grants are intended to assist half-day kindergarten programs to transition to full-day programs and to improve curriculum and classroom practices.[249]

New Jersey

The Abbott court case mandated that full-day kindergarten be provided in Abbott school districts, while not mandating attendance by eligible students. Although the New Jersey Kindergarten Implementation Guidelines recommend six to six and one-half hours of instruction be provided to full-day kindergarten students, the length of the full-day kindergarten school day is locally determined and can be as short as two and one-half hours. Maximum class size is 25 students per teacher for non-Abbott districts and 21 students per

teacher for Abbott districts. If teacher aides assist in the classroom, class sizes can be larger. Funding for full-day kindergarten in Abbott districts mirrors that of funding for grades one through twelve. Twenty-seven percent of New Jersey school districts (114 districts) do not yet provide a full-day kindergarten option.[250] A task force was created in May, 2013 to explore the options and challenges of expanding full-day kindergarten to all districts.

HIGH SCHOOL GRADUATION AND COLLEGE READINESS PROGRAMS

Graduating from high school is more important than ever before. As the availability of jobs for high school graduates continues to fall, the prospects for those who have not graduated are increasingly dim. Individuals without a diploma are paid $7,000 less annually than a high school graduate and $26,000 less than a college graduate. In addition, it is estimated that high school dropouts cost the U.S. more than $300 billion annually in lost wages.[251] The public sector typically suffers a lifetime loss of $200,000 per high school dropout in reduced tax payments, increased public health and welfare costs, and greater costs from crime. The U.S. ranks twentieth out of 28 Organization for Economic Co-operation and Development (OECD) countries with respect to high school graduation rate, indicating that this is a critical issue nation-wide.

Typically, the reasons cited for dropping out of high school include academic failure, a life event, a lack of social or academic engagement, and problematic behavior.[252] There is a higher rate of dropping out among English-language learners, students from single-parent homes, and students who are parents themselves. Many of these students are assisting in the financial support of their families. In addition, students from low-income families are four times more likely to drop out than their higher-income peers, and Hispanic students born outside the U.S. are three times more likely to drop out than their native-born Hispanic peers.[253] Researchers point to poorly performing high schools—"dropout factories"—in each state where the dropout rate is 40 percent or higher.[254] As highlighted in Figure 19, Utah has five such dropout factories, up from only one in 2002.[255] Focusing strategies on these specific schools could have the greatest effect on the state's graduation rate.

Fortunately, many states have been successful in improving average graduation rates over the past three years.[256] States, schools, and districts are testing innovative ways to keep students in school and on the path to graduation. Some districts are providing students with alternate and flexible ways to complete their high school course work and a number of states have implemented alternate methods of earning a high school diploma. Some states allow students to earn credit based on content knowledge, while others provide a means for students to earn credit in after-school and summer programs.[257]

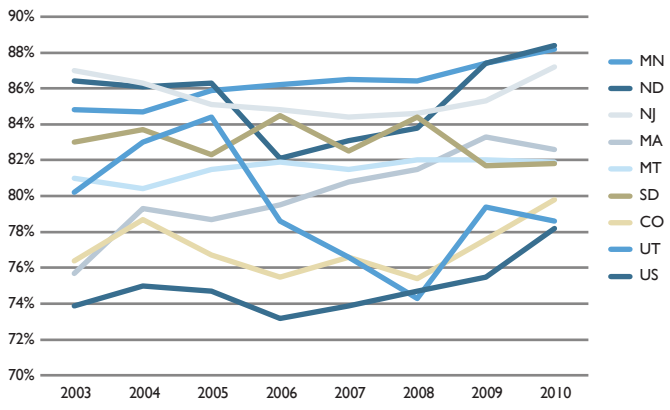
Figure 19: Changes in Dropout Factories in Peer and Benchmark States: 2002 to 2011

State	Total Number of Dropout Factory* High Schools (2002)	Total Number of Dropout Factory* High Schools (2011)
Colorado	32	14
Massachusetts	24	24
Minnesota	6	5
Montana	1	1
New Jersey	24	15
North Dakota	0	0
South Dakota	3	2
Utah	**1**	**5**

*Dropout Factory refers to schools where the dropout rate is 40 percent or higher.

Source: Johns Hopkins University School of Education.

Figure 20: Average Freshman Graduation Rate



Source: America's Promise Alliance, Building a Grad Nation.

Using the increasing amount of student-level data that are now available, several states, such as Colorado and Louisiana, have developed early warning systems that flag students based on academic performance, attendance, and behavior when they are at risk of dropping out. Data collection begins in middle school to build knowledge and develop predictors of students that might be at risk. Staff can then intervene with dropout prevention strategies that are customized to the individual student.[258] Policies and programs have also been developed to recover dropouts through incentives, outreach, and reentry opportunities, especially for juvenile offenders.[259]

To promote high school graduation for all students, Princiotta and Reyna recommend that states hold administrators and educators accountable for graduation rates, take action to prevent dropping out, and encourage recovery.[260] To raise awareness of the graduation problem, states should embark on a communications campaign with the support of local media, the use of social media tools, and the backing of parent organizations and school boards.[261]

College Readiness

The National Assessment Governing Board that oversees the NAEP recently defined "college-prepared" by documenting what is meant for a student to be academically prepared for college. Students who perform at or above 163 out of 300 in math and 302 out of 500 in reading on twelfth-grade assessments are deemed likely to possess the knowledge and skills necessary for college.[262] More than thirty studies have found that students who meet the "proficient" level on NAEP[263] typically achieve a college-readiness assessment on the SAT or ACT. However, in 2012, only 25 percent of twelfth graders met the ACT College Readiness Benchmarks in all four subjects on the ACT. Just over half met the Reading Benchmark, while fewer than one-third of students met the Science Benchmark and only 46 percent met the Mathematics Benchmark.[264]

Many students who intend to go to college do not ultimately enroll because of a lack of "college knowledge"—the understanding of college options, admissions criteria, how to prepare academically, and how to access the financial resources needed to attend.[265] Counselors are a critical source of this information, especially for minority, low-income, and first-generation college students. Therefore, researchers

recommend that the student-counselor ratio remain below 100:1 and that college admissions requirements and cost information be disseminated starting in the middle grades.[266]

Case Studies: Peer States

Colorado

In 2009, Governor Bill Ritter set a goal to cut the state's dropout rate in half by 2016. The recently created Office of Dropout Prevention and Student Re-engagement requires school districts with low graduation rates to develop graduation completion plans based on best practices,[267] and works with districts to develop dropout prevention and recovery strategies.[268]

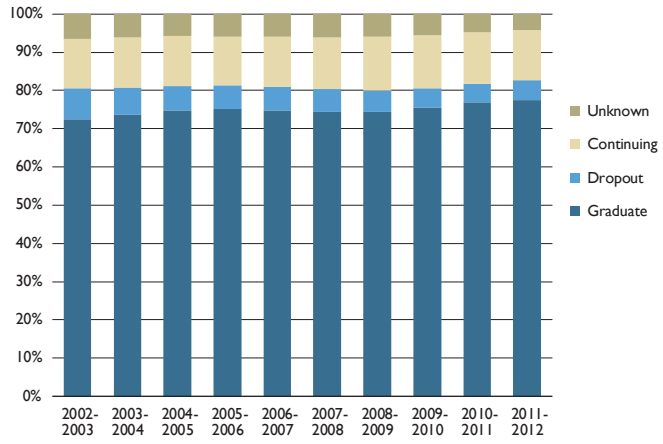
The Colorado Graduates Initiative is a group of partners that work together to reduce Colorado's dropout rate and increase Colorado's high school graduation rate. The foundational principles of the program are based on research conducted by the Center for Social Organization of Schools at Johns Hopkins University, the National Center for School Engagement, and the National Dropout Prevention Center at Clemson University.[269] Colorado was one of six states to receive grant money from the National Governors Association (NGA) Center for Best Practices.[270]

Minnesota

Minnesota Governor Tim Pawlenty made dropout prevention a key policy issue during his tenure, setting a state-wide goal of a 100 percent graduation rate by 2019.[271] Minnesota has been successful at improving graduation rates through initiatives such as the "We want you back" campaign launched in the Minneapolis school district, which hosted community meetings where former students could meet with high school counselors and map out their best option to earn a diploma or complete a General Educational Development (GED) credential. Minnesota received a grant from the NGA Center for Best Practices to develop an early warning data system and a framework of dropout prevention strategies.[272]

As early as 1985, Minnesota established a Post-secondary Education Opportunities program, which promoted rigorous course-taking to improve student transitions to post-secondary education.[273] In 2000, College Possible was introduced with the mission of "making college admission and success possible for low-income students through an intensive curriculum of coaching and support."[274] The organization, staffed mainly by AmeriCorps workers, is expected to serve more than 15,000 students in 2013-2014. College Possible offers ACT and SAT test preparation, college application assistance, financial aid consulting, information about transitioning to college, and help with financing a college degree.[275] ACT scores for participants have increased by 22 percent. Ninety-two percent of low-income students assisted by College Possible enroll in college and 58 percent graduate within six years.

Figure 21: Minnesota Cohort Graduation and Dropout Rates



Source: Minnesota Department of Education.

The Minnesota P-20 Education Partnership was formed in 2005. As part of that partnership, the College and Work Readiness Knowledge and Skills working group was formed to identify the reading, writing, and mathematics knowledge and skills needed for entry into post-secondary education and/or into highly skilled occupations. The group also determined how these skills aligned with the existing high school graduation requirements.[276]

In 2005, Minnesota implemented "Get Ready, Get Credit," an Educational Planning and Assessment System (EPAS) program designed to guide students to college readiness, which includes helping with curriculum choices. Minnesota credits the "Get Ready, Get Credit" program with a significant increase in the number of students taking AP tests by 64 percent overall, and by 106 percent for non-White students.

Since 2005, Minnesota has worked with Achieve's America Diploma Project (ADP), which assists states in aligning their high school graduation requirements with skills needed for college and careers.[277] The ADP Network, which includes Colorado, Minnesota, Massachusetts, and New Jersey, is working both to develop state-wide high school assessment systems aligned with college and career expectations and to create reporting and accountability systems that promote college and career readiness for all students.[278]

In 2007, Minnesota provided $8 million in grant funding over two years to districts who committed to increase the number and success of under-represented student groups in Advanced Placement and International Baccalaureate programs. Within that period, the districts had more than a ten percent increase in participating students, with even greater rates for Black and American Indian students.[279]

In 2009, Minnesota initiated the High School Redesign Framework[280] with the goal of ensuring that all students "develop a strong work ethic, gain competitive employment, pursue lifelong learning, become engaged citizens for the 21st Century, and enhance their quality of life."[281] The framework calls for the following:[282]

- Rigorous and relevant course-taking for all students, especially at transition points.
- Personalized learning environment for each student, with the support of parents and other adult mentors.
- Multiple pathways to postsecondary training or college to achieve a minimum K-14 education.
- High-quality teacher and principal leadership.
- Student assessment and program evaluation data used to continuously improve school climate, organization, management, curricula and instruction.

The Minnesota Department of Education claims that the results from the program have been rapid and definitive. These include increased course passing rates, improved state test scores, more students enrolled in dual enrollment, decreased student absenteeism, and fewer disciplinary referrals.[283] For example, at one high school 91 percent of at-risk students passed algebra, while at another high school reading scores among tenth graders improved by 16 percent.[284]

Montana

In 2010, Montana launched Graduation Matters Montana to support local initiatives that "engage schools, businesses, and families in a focused effort to increase the number of students who graduate prepared for college and careers."[285] The program encourages students to take a pledge to graduate—8,500 students in 33 communities have complied.[286] The program encompasses curriculum development and content delivery to instructional coaching and mental health assessments.[287] Within three years, the number of students dropping out has reduced from 2000 in 2010 to 1800 last year.[288] In fact, from 2009 to 2012 the high school dropout rate has decreased a full percentage point, down to just 4.1 percent, while the graduation rate has increased by more than three percent to 83.9 percent.[289]

Established in 2006, the Montana Career Information System is a portal for career exploration, self-assessment, and high school and college planning. Montana students are able to create their own Big Sky Pathway Montana Achievement Plan,[290] which recommends a sequence of courses at high school, community college, or distance education based on a student's unique interests and career goals.

In 2008, Montana was one of seven states to receive a Lumina Foundation "Making Opportunity Affordable" grant, now called College!Now, to implement a "productivity" agenda. The goal was to increase access to dual enrollment courses and early college high school coursework, with the end-goal of enabling low-cost college access for high school students at Montana's two-year campuses.[291]

South Dakota

In 1992, South Dakota founded GEARUP South Dakota, a cohort-based, summer residential pre-college enrichment program focused on American Indian students. The ongoing goals of this summer program are to increase high school graduation rates, provide college awareness, and encourage students to attend post-secondary institutions. Students attend summer camps for four summers during high school to learn about where to attend college, what courses are required, how to manage a rigorous curriculum, and to experience time away from their families.[292] More than 6,000 students in grades six through twelve participate in the program each year.[293] Every graduate of the program has gone on to graduate from high school, 87 percent have pursued college degrees, and nine percent have joined the military. Sixty-five percent of program participants have graduated from college.[294] Since 2005, South Dakota is one of 19 states that have received funding for the program from the U.S. Department of Education.

In 2003, the South Dakota legislature initiated the South Dakota Opportunity Scholarship. This scholarship is awarded to high school students who complete one additional math and one additional science course during high school. The standard requirement for high school graduation is three credits in both math and science, whereas the SDOS requires four of each. Successful applicants receive $5,000 over four years toward attendance at an eligible post-secondary institution in South Dakota.[295] Since the scholarship was initiated, nearly 9,000 students have been awarded scholarships.[296]

South Dakota is one of 22 states that allow students to earn a high school diploma through non-traditional means. The state school board permits schools to award credit based on end-of-course exams or other assessments, without mandating that students spend the requisite 146 hours in class during the year.[297]

South Dakota has recently initiated a new program in conjunction with Jobs for America's Graduates (JAG). Thirty-two states and nearly 900 program affiliates make up the JAG national network.[298] Although this program is in the early stages for South Dakota, it is expected to address lower proficiency levels and have a major impact for low-performing students. Based on program results in other JAG network states and student testimonials,[299] the legislature has appropriated additional funds for this small program. District and school staff set aside time to devote to the program and identify target students who are at risk for not graduating. South Dakota students who have participated in the program to date have graduated from high school and some are going on to college.[300]

Case Studies: Benchmark States

Massachusetts

In 2008, Governor Deval Patrick signed legislation to improve dropout prevention in Massachusetts through the creation of a Graduation and Dropout Prevention and Recovery Commission. The state's goal was to cut the dropout rate in half in five years by identifying and implementing promising programs[301] such as the existing Expanded Learning Time Initiative, which provides for a longer school day and longer school year.[302] The Commission's report of October 2009 outlined the plans for moving forward, including early identification of students at risk of dropping out, development of effective prevention, intervention and recovery strategies, and implementation of reforms.[303] As a result of these comprehensive recommendations, the NGA Center for Best Practices awarded a grant to Massachusetts to continue their efforts.[304]

Massachusetts funds a variety of programs to help students meet high school graduation requirements and improve their college and career readiness. One set of programs, funded with over $9 million, helps students in eighth grade and above complete the required high school MCAS examinations. Between 2002 and 2009, the average score for students on grade 10 MCAS tests moved from below Proficient to nearly Advanced.[305]

The state also provides some $2 million in funding for the Connecting Activities program that links high school students to the world of work through internships and work-based learning. Priority is given to students scoring in Needs Improvement or Warning/Failing on MCAS tests. A 2007 study showed that 57 percent of students who participated in the program earned a Competency Determination,[306] compared with 43 percent of comparable students not served by the program.[307] The state also provides nearly $3 million for STEM-focused education programs. In 2008, only 20 percent of Massachusetts students indicated an interest in pursuing a career in the STEM fields, well below the national average. In October 2009, Governor Patrick established a STEM Advisory Council with the mission of increasing student interest in and preparation for careers in STEM fields.[308]

CONCLUSION

The ability of Utah's peer states and benchmark states to improve student achievement over time and to maintain higher test scores is reassuring. The research and case studies presented here illustrate that the implementation of select programs and initiatives, together with targeted investment, can indeed contribute to improved student performance and better prepare students for future endeavors, such as college and career.

This research report was written by Utah Foundation Research Analyst Kathryn Zwack with assistance from Research Consultant Betsy Escandon, Research Interns Rebecca Jack, Kevin Mitchell, and Mallory Bateman, and Utah Foundation President Stephen Hershey Kroes. Ms. Zwack or Mr. Kroes can be reached for comment at (801) 355-1400, or by email at: kathryn@utahfoundation.org or steve@utahfoundation.org.

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APPENDIX: OFFICIALS INTERVIEWED FOR THIS STUDY

Name	Position	State
Dr. Keith Owen	Deputy Commissioner	Colorado
Jeffrey Wulfson	Deputy Commissioner	Massachusetts
Daron Korte	Chief Legal Counsel and Government Relations Director	Minnesota
Dr. Beth Aune	Director of Academic Standards	Minnesota
Dennis Parman	Deputy Superintendent	Montana
Justin Barra	Chief Policy and External Affairs Officer at New Jersey Department of Education	New Jersey
Bob Marthaller	Assistant Superintendent, Educational Success & Improvement	North Dakota
Valerie Fischer	Director, Safe & Healthy Schools/Adult Education	North Dakota
Ann Ellefson	Title I Private School Programming, NDMILE	North Dakota
Jan Martin	Administrator, Office of Assessment	South Dakota
Dr. Melody Schopp	Secretary of Education	South Dakota
Judy Park	Associate Superintendent	Utah
Ray Terry	Superintendent of Beaver School District	Utah
Martell Menlove	State Superintendent	Utah