Learning Together: Assessing Colorado's K-12 Education System

CENTER FOR EDUCATION POLICY ANALYSIS

AT THE GRADUATE SCHOOL OF PUBLIC AFFAIRS

UNIVERSITY OF COLORADO AT DENVER AND HEALTH SCIENCES CENTER

OCTOBER 2006

Center for Education Policy Analysis

The Center for Education Policy Analysis provides research and analysis on issues affecting preK-16 education. CEPA is housed at the Graduate School of Public Affairs, University of Colorado at Denver and Health Sciences Center. Dr. Paul Teske, a member of the GSPA faculty, is the director of CEPA. This report was authored by Kelly Hupfeld of Public Sector Solutions, as a consultant to CEPA.

Contact us at:

Center for Education Policy Analysis

Graduate School of Public Affairs

University of Colorado at Denver and Health Sciences Center

1380 Lawrence Street, Suite 500 Denver, CO 80204

(303) 556-5970

gspa@cudenver.edu

CEPA would like to acknowledge the following sponsors for their generous support of this report:

COLORADO CHILDREN'S CAMPAIGN

THE PITON FOUNDATION

THE COMMUNITY INVESTMENT DIVISION OF GARY-WILLIAMS ENERGY CORPORATION

pebc

Public Education & Business Coalition

DK DONNELL-KAY FOUNDATION

Learning Together: Assessing Colorado's K-12 Education System

Table of Contents

Introduction

In today's world, education holds the key to individual and collective futures. As our society, our economy, and our democracy evolve to require ever greater knowledge and skills, we look to our public education system to provide much of this foundation. Public education also represents one of our largest collective investments as a society. For all of these reasons, the performance of public education is of great interest to all of us.

The Center for Education Policy Analysis is releasing this report to provide a picture of Colorado's K-12 education system, including how it works, the achievement of Colorado students, and the status of some of the factors that affect student achievement. As education systems have begun to focus on aligning goals from early childhood education through post-secondary education, often referred to as a "P-16" approach, we will also touch on issues related to the transitions into and from the K-12 system. However, the focus of the report will be on K-12 education in Colorado.

In evaluating Colorado's performance, the report will provide information about Colorado's current status on a variety of indicators. To allow for comparisons where appropriate, the report will also show past performance in the state as well as Colorado's relative performance when compared to national averages and the performance of selected peer states. The peer states selected for this comparison are Arizona, Georgia, Minnesota, New Mexico, Oregon, Texas, and Washington. The peer states were selected for certain characteristics they have in common with Colorado, including (depending upon the particular state) total population size, size of the state's Hispanic/Latino population, and regional and metro area economic competitiveness, particularly in high-technology sectors. These states have been used by other researchers in studies comparing Colorado in a variety of indicators. (E.g., Metro Denver Economic Development Corporation 2005; Bell Policy Center 2003; Governor's Blue Ribbon Panel on Higher Education for the 21st Century 2003).

Colorado outpaces most of the peer states on a variety of indicators that measure adult wealth and education, characteristics that usually correlate extremely well with K-12 student achievement. For example, the 2005 American Community Survey results place Colorado 12th in the nation for median family income, and 36th for the number of people living below the poverty level. More than one-third of Colorado adults have bachelor's degrees, making us the second most educated state in the country. Nearly 89% of adults have completed high school or the equivalent, ranking Colorado 13th for this indicator. We have the highest percentage of adults employed in the information industry of any state. These are very favorable statistics for children: when parents are educated and economically secure, children are better-positioned to perform well in school.

When we look at Colorado's K-12 indicators, some of them reflect the kind of academic achievement that should be expected in a state with our advantages. However, there are some surprising areas in which Colorado is only average, or even worse. Some of these are performance indicators, such as the wide achievement gap between student groups, or our high school graduation rates. Some of them are "input" indicators, such as school funding and student-teacher ratios, that represent the resources that Colorado puts into its classrooms. An interesting question for the state is whether the lag in some "input" indicators is related to the lag in certain "outcome" indicators.

Ensuring that all children will succeed in our K-12 schools, in an era of greatly increased expectations and substantial demographic shifts, requires the system to hold high expectations for itself and for the children it serves. But success also requires making sure that the system and the children it serves have the resources necessary for success, and use these resources effectively. Our wide achievement gaps suggest that many Colorado schools are struggling to serve the children who are most at-risk of academic failure, and that many Colorado schools are serving well those children who are well-positioned for success. In the coming years, Colorado schools will need to dramatically improve in order to make sure that all children can learn according to the high standards we have set for them. In turn, our schools and our students will need support from our local and statewide communities to make this happen.

The first section of this report will set the context for examining Colorado's K-12 education system, explaining how the system works and describing the characteristics of students served by the system. The next section looks at academic achievement indicators as trends over time and in comparison with peer states. The third section concerns indicators of how well we are preparing students for graduation and success after graduation. Finally, the report looks at important inputs into the system: teachers, course rigor, and resources. Three shorter pieces following the main report provide insight into timely issues facing Colorado education: a ballot initiative in Denver concerning preschool funding, two statewide ballot issues mandating classroom-related spending, and factors affecting teaching in Colorado.

We hope you find this report interesting and informative. If you have suggestions for how we might improve future editions of the report, please contact us!

Colorado's Context: Our System and Our Students

Colorado's Strengths:

- Strong system of standards and accountability
- Decentralization allows for district innovation
- Relatively wealthy and educated state population

Colorado's Challenges:

- Decentralization can result in lack of statewide leadership and coordinated resources for education
- Increasing numbers of at-risk students

Our public education system: how it works

Like all states, Colorado's state constitution requires the state to provide a system of free public education. Our legislature has defined the term "public school" to mean any school that derives its support, in whole or in part, from state or local taxes. (C.R.S. sec. 22-1-101(1)). Education in Colorado is notable for its decentralization and relatively innovative attitude towards school reforms such as choice.

The general assembly shall … provide for the establishment and maintenance of a thorough and uniform system of free public schools throughout the state, wherein all residents of the state, between the ages of six and twenty-one years, may be educated gratuitously.

Colo. Const., art. IX, sec. 2.

Organization and governance

Colorado education offers students a great variety in how and where to learn. In addition to the traditional "neighborhood" school, a student can choose to attend another school in the district or even a school outside the district. Students can attend charter schools or alternative or magnet programs offering unique approaches to instruction and/or curriculum. Online education can be accessed through school districts and through online charter schools, on a class-by-class basis or as the primary means for delivery of education.

The vast majority of Colorado's public K-12 schools are housed in 178 school districts throughout the state. School districts are governed by elected school board members, and operated by district superintendents appointed by the local school boards. Our state constitution specifies that the local school boards are to have control over instruction in their districts, a relatively rare approach known as "local control" of education. (Colo. Const., art. IX, sec. 15). Colorado's local control history has resulted in a decentralized approach to education compared to other states.

Colorado's districts vary widely in size, both in enrollment and in geographic size. As the chart below shows, the largest districts have tens of thousands of students, while the smallest districts have fewer than 100 students. In fact, 50 of Colorado's districts enroll fewer than 300 students. According to the Colorado Department of Education, the fifteen districts in the Denver metro area enroll 55% of all Colorado's students, while the 86 districts serving Colorado's small towns and rural areas enroll just 13% of our students.

Responsibility for overall supervision of the public schools lies with the elected members of the State Board of Education. The Colorado Department of Education is the administrative arm of the State Board of Education, and is headed by a Commissioner of Education appointed by the State Board. The General Assembly is responsible for carrying out its constitutional obligation of maintaining the thorough and uniform system of public schools, such as providing for school funding.

COLORADO SCHOOL DISTRICTS BY SIZE, FALL 2005

ENROLLMENT IN LARGEST DISTRICTS		ENROLLMENT IN SMALLEST DISTRICTS	
Jefferson County	86,339	Campo (Baca County)	52
Denver	72,312	Plainview (Kiowa)	57
Cherry Creek	48,661	Kim (Las Animas)	65
Douglas County	48,043	Agate (Elbert)	74
Adams 12 Five Star	37,598	Pritchett (Baca)	77

Source: Colorado Department of Education

Colorado's Context: Our System and Our Students

Student learning and accountability

How do Colorado's schools and teachers know what to teach? And how do they know if students are learning? Colorado has what is known as a standards-based accountability system that serves as the foundation for answering these complicated questions. Although all states now have such a system due to federal mandates, Colorado was a leader in this reform.

In 1994, Colorado adopted the Colorado Model Content Standards. These standards set out what students are supposed to know and be able to do in thirteen different areas, ranging from reading and math to music and physical education. For each subject area, the standards are divided into four grade ranges: K-2, 3-5, 6-8, and 9-12. School districts are required to adopt the equivalent of the state standards or more rigorous standards.

In order to assess whether students are learning the content required by the standards, the state adopted the Colorado Student Assessment Program. The CSAP tests measure student knowledge of standards in four subject areas: reading, writing, mathematics, and science. The CSAPs in reading, writing, and math are administered to all students in grades 3-10, and the science CSAPs are now taken by students in grades 5, 8, and 10.

Scores on the CSAP fall into one of four categories: advanced, proficient, partially proficient, or unsatisfactory. If a student scores proficient or advanced, he or she is considered to have mastered or exceeded the content contained in the standards. Legislation passed in 2000 required the aggregation of student scores to determine school and district ratings, and these ratings – unsatisfactory, low, average, high, and excellent -- are used to hold schools and districts accountable, along with indications of whether school performance is increasing, falling, or holding steady. Every year, school outcomes are published in School Accountability Reports distributed to parents and communities. Schools that consistently do not perform well are subject to reorganization as charter schools. (C.R.S. 22-7-601 et seq.)

School districts are held accountable through the accreditation process maintained by the state. This system requires districts to meet a variety of benchmarks, including student achievement scores. If a district consistently fails to meet these goals, it may lose accreditation and be subject to reorganization. (C.R.S. 22-11-101 et seq.)

The federal No Child Left Behind (NCLB) law provides yet another layer of accountability for schools and districts. NCLB requires schools, districts, and states to show that students are making "adequate yearly progress" (AYP) towards a goal of 100% student proficiency in reading and writing by the 2013-14 school year. Failure to make AYP leads to another host of consequences.

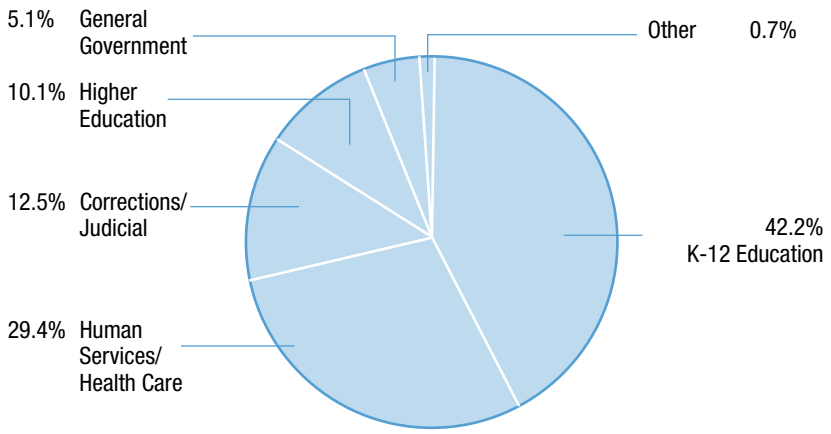
How we fund public education in Colorado

Due to its scope and labor-intensive nature, public education is an expensive undertaking. Like many states, Colorado spends more of its state general fund on public education than in any other area. (Joint Budget Committee 2006).

The Colorado School Finance Act of 1994 determines how much funding school districts will receive per student in the district. First, the legislature sets a base amount of funding per student. The most recent school finance bill established the base amount at $4,863.67, an increase of 3.1% over the previous year. Amendment 23, passed by voters in 2000, requires the legislature to annually increase the base amount by at least inflation plus one percent until 2010, and by at least inflation thereafter.

The base amount is then modified by a formula contained in the School Finance Act that adjusts for factors such as district size, cost-of-living, personnel costs, and

Colorado State Operating Budget, Comparison of General Fund Appropriations by Program, FY 2006-07



Source: Joint Budget Committee 2006

number of at-risk students. Districts also receive funding for students enrolled in on-line programs operated by the district. The resulting number, multiplied by the number of students in the district, is the district's Total Program amount. Districts also receive some "categorical" funding from the state in categories such as special education and transportation.

Districts are responsible for a share of the Total Program amount, which they raise through local property taxes. After a district's local contribution is taken into account, the state is then responsible for backfilling the remainder of the Total Program amount. As districts' ability to raise local property taxes is slowed by a combination of voter-initiated tax and revenue limitations (TABOR and the Gallagher Amendment), the state share of Total Program has been steadily rising. In this fiscal year, according to CDE's school finance website, the state will be responsible for 65% of the $4.7 billion that will be spent on public education by Colorado's state and local governments. Although the federal No Child Left Behind act is influencing school district behaviors through its accountability mechanisms, federal funds account for a relatively small portion of school district revenue — just 7.2% of school district revenue in 2004-05, according to CDE.

Before and After K-12: Preschool and Higher Education

The quality of a child's experiences prior to entering kindergarten generally will have a direct effect on his or her success in school. Students who come into school behind their peers due to poverty issues, for example, often fail to catch up. (Wertheimer et al. 2003). For this reason, more and more advocates are urging the state and local communities and school districts to provide quality early childhood education.

Currently, Colorado does not provide funding for school districts to offer full-day kindergarten. Instead, districts receive funding only for half-day kindergarten. All school districts do offer full-day kindergarten, but parents are usually required to pay for the extra time if they choose to enroll their children in the extra half day.

Colorado has a subsidized preschool program, the Colorado Preschool Program (CPP), which provides funding for limited numbers of at-risk children to attend preschool and full-day kindergarten. Although funding for the Colorado Preschool Program was cut during the recent recession, slots are slowly being added back. Out of Colorado's 178 school districts, 162 have sites serving children through CPP. In the 2005-06 school year, CPP received funds to serve 10,860 preschool students and 1,500 full-day kindergarten students. School districts identified nearly 6,000 additional children eligible for CPP services but unable to participate due to lack of funded slots. (CDE 2006a).

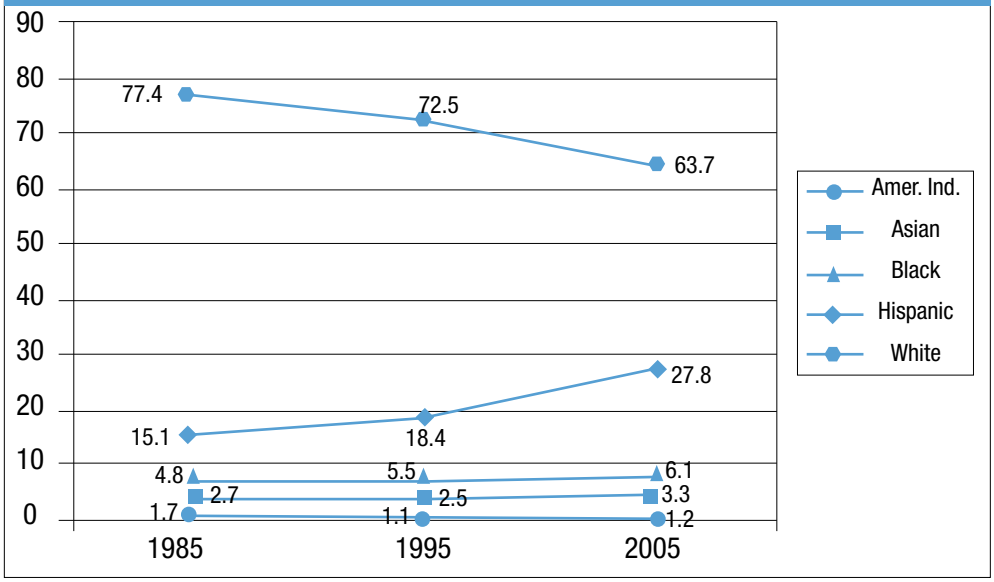
Colorado also has a system of publicly-funded colleges and universities, in addition to numerous private institutions. According to the Colorado Commission on Higher Education, in fall 2004 over 220,000 students were enrolled in Colorado public institutions of higher education. Approximately 85,000 of these students attended two-year colleges, and close to 135,000 students attended four-year institutions.

Our K-12 students: who are we serving?

In fall 2005, 757,116 students were enrolled in grades K-12 in Colorado's public schools, ranking us 22nd in the country in terms of total state K-12 public school enrollment. (NEA 2005). Another 23,592 children attended public preschools in Colorado. Altogether, student enrollment has increased 22% from 1994, and 43% from 1984.

A greater percentage of Colorado children attend public schools than is the case nationwide. Nationally, 88% of school-age

Pupil Counts by Racial/Ethnic Groups as Percentage of Total Enrollment, 1985-1995-2005



Source: Colorado Department of Education

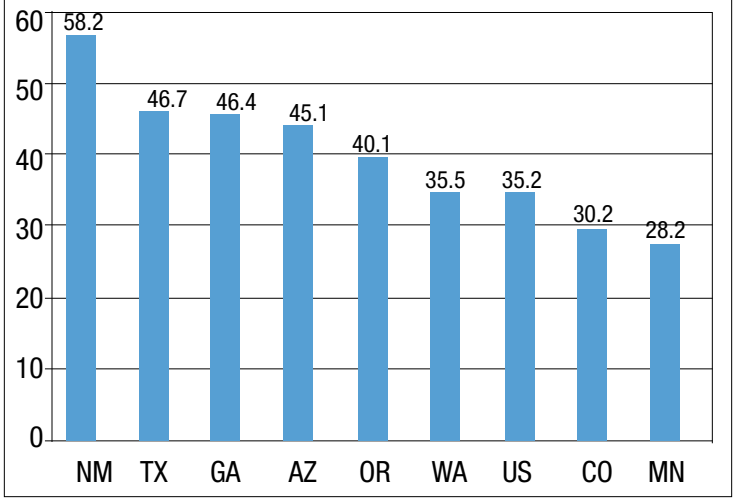
Colorado's Context: Our System and Our Students

students attend public schools. (Kober 2006). In our state, according to statistics maintained by the Colorado Department of Education, 93% of K-12 students attend public schools, while 5.9% attend private schools and just under one percent are homeschooled.

Like our state population generally, our students are increasingly diverse, as the chart on the previous page shows. According to CDE, the number of PK-12 Hispanic students has increased by nearly 150% since 1985.

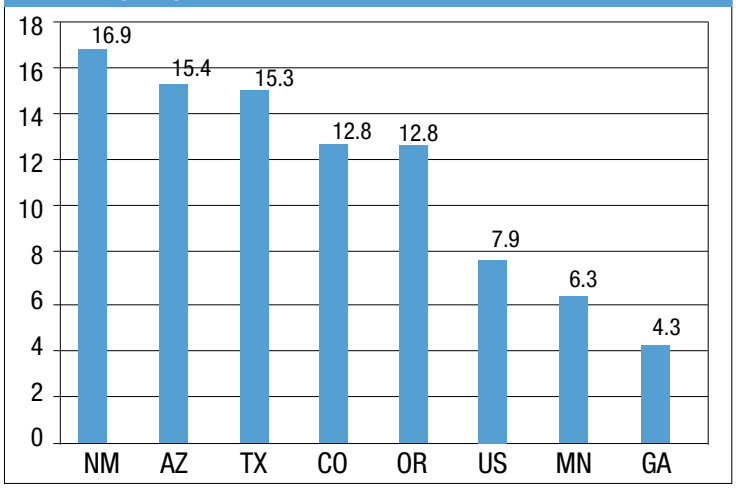
Students with certain characteristics, such as a family background of poverty, special needs, or a lack of familiarity with the English language, usually require more resources to educate to the same levels as students without these challenges. Some estimate that students in poverty need to be funded at a level 1.2 times the amount of funding provided to a child not in poverty. Special education students may require 1.9 times as much funding. (Education Week 2006a). For these reasons, it is important to understand the percentages of children in these circumstances to have a full picture of education in Colorado.

Percentage of Public School Students Eligible for Free or Reduced Lunch Program, 2003-04, Colorado and Selected States



Source: National Center for Education Statistics, Common Core of Data, 2003-04

Percentage of Students in LEP/ELL Programs, 2003-04, Colorado and Selected States



Source: National Center for Education Statistics, Common Core of Data 2003-04.

The Colorado Department of Education reports that in the 2005-06 school year, one-third of Colorado's students in preschool through 12th grade were eligible for the federally-subsidized lunch program. This statistic is often used as a proxy for the number of children in poverty in the educational system, since families with incomes at or below 185% of the federal poverty levels are eligible for this subsidy. In the 2006-07 school year, children in families of four earning less than $37,000 are eligible for free or reduced lunch. (Federal Register, Vol. 71, No. 50, March 15, 2006). Consistent with our status as one of the country's wealthiest states, however, this is a relatively low percentage compared to the national average and most of our peer states.

Similarly, students who are not fluent in the English language will require additional services. Colorado has experienced a rapid increase in the number of English language learners, as have several other Western states. Over 12% of Coloradans speak Spanish at home, ranking us 10th in the nation in this indicator. (U.S. Census Bureau 2006).

Nationally, 12.7% of all students require special education services. In Colorado, just 10% of students do. This may be more a reflection of limited state funding available for special education than it is of the nature of our student population. In the 1998-99 school year, Colorado ranked 37th out of 39 reporting states for the ratio of state support to total special education funding – giving our districts an incentive to under-identify or find other ways to address expensive special education needs. (Parrish et al. 2004).

Student Achievement – How Are Our Students Doing?

Colorado's Strengths:

- Relatively high scores on nationwide assessments

Colorado's Challenges:

- One of the country's largest achievement gaps between student groups
- Relatively mediocre high school graduation rates

Public schools serve many purposes in our society, including socializing our children, preparing them to be citizens, and preparing them to be responsible and contributing adults and members of the workforce. Some of these outcomes are easier to quantify than others. For example, we can use standardized tests to measure some aspects of the content and skills that children have learned. Other important outcomes, such as a sense of responsibility and self-efficacy, are harder to measure. Due to space and time limitations, this section will focus on student achievement outcomes as measured primarily by standardized tests. We hope that future editions of this report will contain other measures of student achievement as well.

Grades K-2

In the early elementary years, students gain foundational social, emotional, and academic skills needed to prepare them for success. While our youngest students are not tested with CSAPs, their progress in early literacy is tracked by assessments given pursuant to the Colorado Basic Literacy Act, enacted in 1997. The CBLA provides that a student in grades K-3 who is not progressing at grade level must receive an Individual Literacy Plan, or ILP. Thus, the percentage of students in grades K-3 with ILPs is an important indicator of whether students are learning the skills they need to become good readers.

In 2002-03, the last year in which CDE made statewide results readily available, 22.2% of students in grades K-3 had Individual Literacy Plans. In 2004, CDE increased the rigor of the CBLA standards to reflect new reading research, so we might expect that the percentage of students with ILPs has increased since that time.

Grades 3-5

In the upper elementary grades, students begin to read for knowledge in the content areas. They are reading to learn, rather than learning to read. It is all too easy for students to begin falling behind, so addressing reading issues early is critical to student success. Researchers have found that students who are not reading at grade level by the end of third grade are much more likely to drop out of high school. (National Research Council 1998).

In grades 3-5, the CSAP assesses student progress against standards in reading, writing, and math, and also assesses fifth-graders in science. The following table shows the percentage of students scoring Proficient or Advanced in these areas over time. Overall, the trends are positive in terms of student achievement. In some cases, however, the improvement in scores are not remarkable given the number of years in which the testing occurred, and in a few cases, scores actually declined.

			Percentage of Students Scoring Proficient or Above							
Objective	Measure	Grade	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	Trend
At or above grade level in reading	CSAP Reading	3	n/a	72	73	74	74	71	70	DOWN 2
	CSAP Reading	4	60	63	61	63	63	64	68	UP 8
	CSAP Reading	5	n/a	64	63	66	69	69	70	UP 6
At or above grade level in writing	CSAP Writing	3	n/a	n/a	51	57	52	56	52	UP 1
	CSAP Writing	4	44	46	50	52	53	52	50	UP 6
	CSAP Writing	5	n/a	n/a	51	53	55	57	59	UP 8
At or above grade level in math	CSAP Math	3	n/a	n/a	n/a	n/a	n/a	68	71	UP 4
	CSAP Math	4	n/a	n/a	n/a	n/a	n/a	66	69	UP 3
	CSAP Math	5	n/a	53	55	56	59	63	65	UP 12
At or above grade level in science	CSAP Science	5							37	n/a

Source: Colorado Department of Education

Student Achievement – How Are Our Students Doing?

Because the Colorado Student Assessment Program measures student progress against our state's standards, which are unique to Colorado, we cannot use CSAP scores to assess how our students are doing relative to students in other states. There is, however, a national standardized test, the National Assessment of Educational Progress, or NAEP, which is administered to samples of fourth- and eighth-graders nationwide. Like CSAP, NAEP uses four categories to classify student performance: Below Basic, Basic, Proficient, and Advanced, with student mastery indicated by a score of Proficient or Advanced. The following chart shows how Colorado fourth-graders perform on NAEP relative to national averages and our peer states.

NAEP Scores in Reading and Math for 4th Graders, 2005, Colorado and Selected States

READING, GRADE 4

STATE	BELOW BASIC	BASIC	PROFICIENT	ADV.
US	38	33	23	7
CO	31	33	28	8
AZ	48	28	18	6
GA	42	32	20	6
MN	29	33	28	10
NM	49	31	17	4
OR	38	33	23	7
TX	36	35	23	6
WA	30	34	27	8

MATH, GRADE 4

STATE	BELOW BASIC	BASIC	PROFICIENT	ADV.
US	21	44	30	5
CO	19	42	33	6
AZ	30	42	25	4
GA	24	47	26	4
MN	12	40	39	8
NM	35	46	17	2
OR	20	43	31	6
TX	13	47	35	5
WA	16	42	36	6

Source: National Center for Education Statistics

Grades 6-8

In the middle school years, students in each grade are tested in reading, writing, and math, and eighth-graders are tested in science. The following chart shows the percentage of students in each grade level scoring proficient or above in these subjects across time. Again, eighth-grade NAEP scores provide the ability to compare the performance of Colorado eighth-graders to eighth-graders nationwide and in peer states.

			Percentage of Students Scoring Proficient or Above							
Objective	Measure	Grade	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	Trend
At or above grade level in reading	CSAP Reading	6	n/a	63	65	67	67	67	69	UP 6
	CSAP Reading	7	62	63	59	61	61	64	64	UP 2
	CSAP Reading	8	n/a	63	65	66	64	64	66	UP 3
At or above grade level in writing	CSAP Writing	6	n/a	n/a	50	54	56	59	59	UP 9
	CSAP Writing	7	53	52	50	53	52	56	56	UP 3
	CSAP Writing	8	n/a	n/a	50	49	49	51	51	UP 1
At or above grade level in math	CSAP Math	6	n/a	n/a	51	50	53	56	57	UP 6
	CSAP Math	7	n/a	n/a	39	41	41	46	45	UP 6
	CSAP Math	8	35	39	39	38	41	44	45	UP 10
At or above grade level in science	CSAP Science	8	45	49	50	49	51	50	50	UP 5

Source: Colorado Department of Education

Student Achievement – How Are Our Students Doing?

NAEP Scores in Reading and Math for 8th Graders, 2005, Colorado and Selected States

READING, GRADE 8

STATE	BELOW BASIC	BASIC	PROFICIENT	ADV.
US	29	42	26	3
CO	25	44	28	3
AZ	35	42	21	2
GA	33	42	22	2
MN	20	42	34	3
NM	38	43	18	1
OR	26	41	30	3
TX	31	43	24	2
WA	25	41	31	3

MATH, GRADE 8

STATE	BELOW BASIC	BASIC	PROFICIENT	ADV.
US	32	39	21	6
CO	30	38	26	6
AZ	36	38	21	5
GA	38	39	19	4
MN	21	36	32	11
NM	47	39	13	1
OR	28	39	26	7
TX	28	41	25	6
WA	25	39	27	9

Source: National Center for Education Statistics

Grades 9-12

			Percentage of Students Scoring Proficient or Above							
Objective	Measure	Grade	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	Trend
At or above grade level in reading	CSAP Reading	9	n/a	63	66	65	66	65	66	UP 3
	CSAP Reading	10	n/a	63	65	67	65	66	68	UP 5
At or above grade level in writing	CSAP Writing	9	n/a	n/a	49	50	53	52	52	UP 3
	CSAP Writing	10	n/a	51	50	52	50	50	50	DOWN 1
At or above grade level in math	CSAP Math	9	n/a	n/a	31	31	32	33	38	UP 7
	CSAP Math	10	n/a	25	27	27	27	30	31	UP 6
At or above grade level in science	CSAP Science	10	n/a	n/a	n/a	n/a	n/a	n/a	47	n/a

Source: Colorado Department of Education

ACT Scores for 2006 Graduates, Selected States

STATE	% OF STUDENTS TAKING ACT	COMPOSITE SCORE	ENGLISH (WRITING)	MATH	READING	SCIENCE
Tennessee	93%	20.7	20.8	19.9	21.1	20.3
Illinois	100%	20.5	20.2	20.3	20.6	20.4
Colorado	100%	20.3	19.7	19.9	20.8	20.4
Mississippi	93%	18.8	19.1	18.0	19.1	18.7

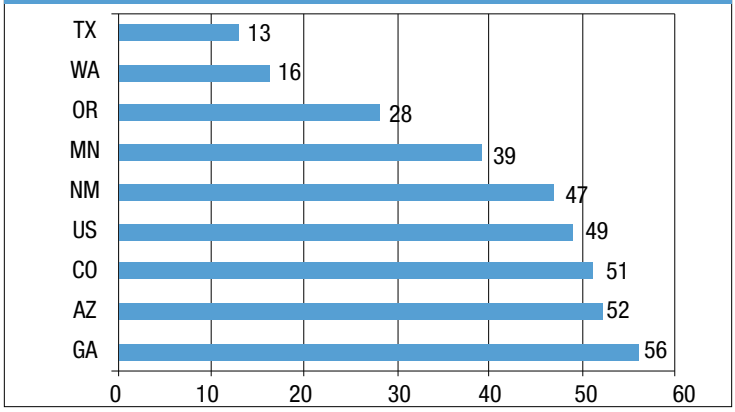
Source: ACT

In the high school years, students in ninth and tenth grades are tested in reading, writing, and math using the CSAP. Recently, Colorado began testing tenth-graders in science. Colorado's eleventh-graders are required to take the ACT college admissions exam.

Although the ACT is a national standardized test, Colorado student scores cannot be reliably compared to scores in most other states. This is because Colorado requires all of its eleventh-graders to take the ACT, while in all but one other state, taking

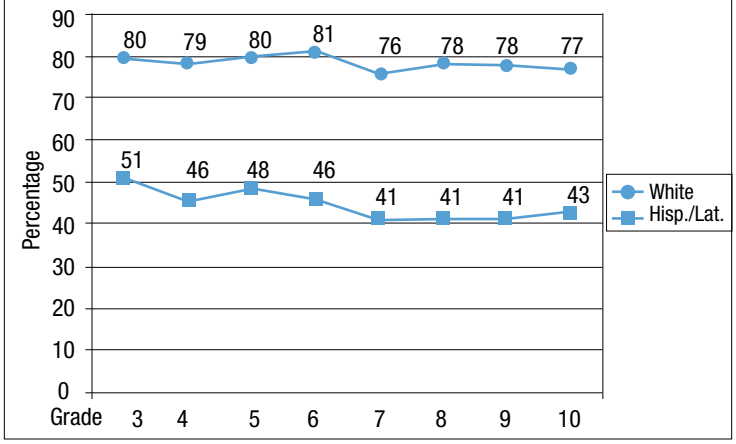
Student Achievement – How Are Our Students Doing?

Percentage of Students Eligible for Free or Reduced Lunch Who Scored Below Basic in NAEP 8th Grade Mathematics, 2005, Colorado and Selected States



Source: National Center for Education Statistics

Percentage of White and Hispanic/Latino Students in Grades 3-10 Scoring Proficient or Advanced, CSAP Reading, 2006



Source: Colorado Department of Education

the ACT is not mandatory. Thus, in most states, the ACT tends to reflect a sample of those students who take the ACT because they are planning to attend college.

We can, however, reasonably compare Colorado's ACT scores with the few other states that have very high student participation rates. Illinois is the only other state that requires all students to take the ACT. As the chart on the previous page shows, ACT score comparisons among the four states with greater than 90% participation rates in the ACT. Surprisingly for a state of our wealth, Colorado's composite scores rank third out of four states.

Student Achievement Gaps in Colorado

Perhaps the most important story today in Colorado K-12 education is that told by the gaps in testing scores among students from different demographic groups. Colorado's schools tend to do well in educating students who are traditionally more successful, but we tend to do an average or worse job in educating students who are traditionally at risk of academic failure. NAEP scores offer an excellent opportunity to compare Colorado with other states in this respect. As the chart to the left shows, some of our peer states are making much greater progress in reaching at-risk students, both those from backgrounds of poverty and those from traditionally underserved racial and ethnic populations. How we address this issue in the coming years will greatly influence the future of our state.

With respect to the achievement gap between students from low-income backgrounds and other students, Colorado ranks 38th in the country, meaning that just 11 states have gaps that are bigger than ours. (Donnell-Kay Foundation et al. 2006).

We need to be particularly concerned about our Hispanic and Latino students, who constitute our largest ethnic minority by far. Gaps between white and Hispanic/Latino students are wide and persist across subjects and grade levels. The chart to the left shows 2006 CSAP reading achievement across grade levels for white and Hispanic/Latino students in Colorado.

Not only does the achievement gap persist through the grade levels, it has been persistent across time. Recent research by CEPA and several partners into student subgroup scores on CSAP and NAEP over the last five to ten years concluded that our gaps have not decreased in any meaningful way during this time. (Donnell-Kay Foundation et al. 2006).

Beyond K-12: High School Graduation, the Workplace, and Post-Secondary Education

Colorado's strengths

- Relatively high "chance for college" for entering high school students

Colorado's challenges

- One of the country's largest gaps in white/Hispanic high school graduation rates pulls down our overall high school graduation rate
- Thirty percent of recent high school graduates continuing on to post-secondary education will require remedial coursework

High School Graduation Rates in Colorado and Peer States, 2002-03[1]

STATE	% OF STUDENTS GRADUATING FROM HIGH SCHOOL, 2002-03
Minnesota	79.0
Colorado	72.5
Arizona	70.0
United States	69.8
Oregon	69.0
Washington	68.2
Texas	66.8
New Mexico	56.7
Georgia	56.3

Source: Education Week 2006b.

[1] *These graduation rates were calculated by the Editorial Projects in Education Research Center, using a Cumulative Promotion Index, or CPI. The CPI estimates the probability that a ninth-grader will complete high school on time with a regular diploma. While there are other ways to calculate graduation rates, the CPI is widely accepted and provides a way to make reliable comparisons among states.*

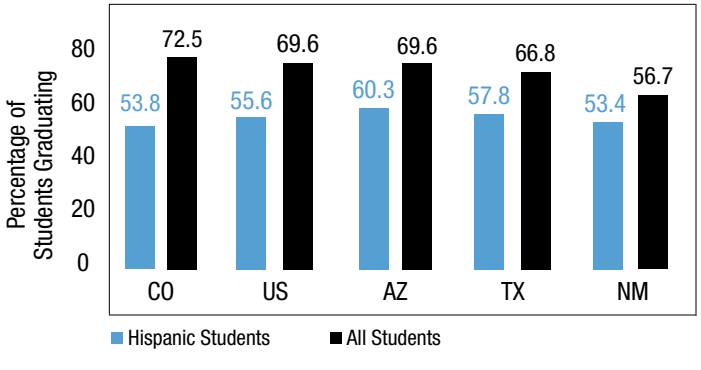
High School Graduation

Ideally, a student's K-12 career culminates with high school graduation and readiness for success in the next stage of the student's life, whether the student chooses to go directly into the workforce or to post-secondary education. Exactly what courses and experiences are needed during high school to prepare for this success is currently the matter of some debate; however, virtually no one disputes that a high school diploma is a minimum qualification for advancement in today's economy.

Colorado's high school graduation statistics are interesting. As discussed previously, Colorado consistently ranks among the wealthiest states and the states with the greatest percentage of college graduates. Given the effect of income and parental education on student success, these statistics would tend to predict higher rates of high school graduates. Yet our high school graduation rate has been consistently around average—72.5%. Many of our peer states, located primarily in the Southwest, are experiencing similar struggles. For a point of contrast, the state with the highest graduation rate, New Jersey, graduates 84.5% of its students.

A closer look into the statistics reveals that Colorado's numbers may be lower than would otherwise be predicted because we are far behind other states with respect to graduating our Hispanic/Latino students, a significant minority of our student population. The following chart compares graduation rates for all students with Hispanic/Latino students nationwide, for Colorado, and for peer states that also have large Hispanic/Latino populations. Colorado's gap of 18.7 percentage points between the overall graduation rate and the Hispanic/Latino graduation rate is larger than the national average of 14 percentage points, and significantly larger than the other peer states.

High School Graduation Rates, by Size of Gap, 2002-03



Source: Education Week 2006b

Beyond K-12: High School Graduation, the Workplace, and Post-Secondary Education

Percentage of Teenagers Who are High School Dropouts, 2004, Colorado and Selected States

STATE	% OF TEENS WHO ARE DROPOUTS	NATIONAL RANKING
Minnesota	5	7
Oregon	6	13
Washington	7	20
US	8	--
Colorado	8	32
Texas	9	37
Arizona	11	45
Georgia	12	48
New Mexico	12	48

Source: Annie E. Casey Foundation 2006

Another way to look at the high school graduation issue is to evaluate the number of teenagers who are high school dropouts. Again, Colorado is in the middle of the road on this indicator, which is lower than we should be given our wealth and overall educational levels.

Entering the Workforce

Over 40% of Colorado's high school graduates will go directly into the workforce. (National Center for Higher Education Management Systems 2002a). Consistent data about the readiness of recent Colorado graduates to succeed in the workplace is not available. Standardized assessments of work readiness, such as ACT's WorkKeys program, are used by some employers and even some school districts, but not consistently throughout the state.

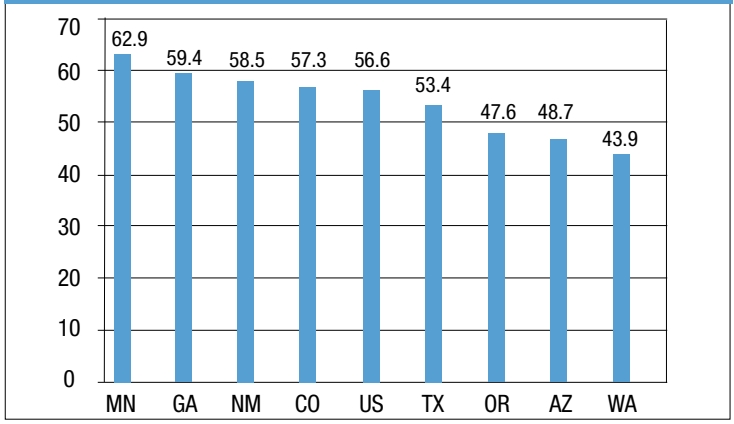
However, recent focus groups with employers and workforce development officials have raised concern. For example, the Fund for Colorado's Future recently convened regional employer focus groups. When asked to rate the readiness of Colorado's high school graduates for the workplace, focus group participants rated their readiness overall as 3.6 on a scale of 1 to 10 (10 being best-prepared). (Klein 2006). In a study conducted for the Department of Local Affairs, researchers convened directors of Colorado's regional Workforce Investment Boards. These officials reported difficulty finding qualified applicants for both entry-level and skilled positions, and concerns about a lack of basic skills in the workforce. (Blansett and Gershwin 2005).

Entering Post-Secondary Education

Researcher Tom Mortenson of Postsecondary Education Opportunity calculates a ninth-grade student's "chance for college" by age 19 in each state and nationwide by combining high school graduation rates with rates of student college-going. In Colorado in 2004, a ninth-grader had a 42.2% chance for college by age 19. Nationwide, the chance for college is just 38.1%. Colorado ranks 15th on this indicator. Of the peer states used in this report, only Minnesota ranks higher, with a chance for college of 54.6%. (Mortenson 2006).

In 2002, 57.3% of high school graduates in Colorado continued directly on to post-secondary education. This is slightly higher than the national average of 56.6%.

Percentage of High School Graduates Continuing Directly to College, 2002, Colorado and Selected States



Source: NCHEMS 2002a.

Beyond K-12: High School Graduation, the Workplace, and Post-Secondary Education

Colorado's achievement gaps continue into post-secondary education. Black and Hispanic/Latino students matriculate into college at lower rates than their respective shares of the K-12 population. And while a substantial minority (29.6%) of all recent graduates entering two- or four-year colleges require remedial coursework to be ready for college-level courses, remediation rates are highest for black, Hispanic/Latino, and Native American students.

Percentages of Colorado K-12 and Public Higher Education Student Populations by Ethnicity, Fall 2005

ETHNICITY	% OF TOTAL K-12 POPULATION	% OF TOTAL PUBLIC HIGHER EDUCATION POPULATION
Asian	3.3	3.8
Black	6.0	3.8
Hispanic/Latino	27.1	11.1
Native American	1.2	1.5
White	62.5	72.6
Unknown	n/a	5.3
Non-resident alien	n/a	1.9

Source: Colorado Department of Education, Colorado Commission on Higher Education

As discussed earlier, the mathematics scores of high school students on standardized tests are of great concern, not just in Colorado but nationwide. Not surprisingly, of the nearly 30% of students assigned to one or more remedial courses, 83% needed a math course. Forty-eight percent of students assigned to remedial coursework needed a course in writing, and 46% needed coursework in reading. (CCHE 2005).

Percentages of Recent Colorado High School Graduates Continuing Directly onto Post-Secondary Education Who Require One or More Remedial Courses, 2005

ETHNICITY	TWO-YEAR COLLEGE	FOUR-YEAR COLLEGE
Asian	49.8	17.4
Black	70.4	42.4
Hispanic/Latino	63.0	35.0
Native American	57.6	47.0
White	52.2	14.4
All	55.1	18.0

Source: Colorado Commission on Higher Education

Students assessed as needing remedial coursework in college are at greater risk of not completing their degrees, whether because of the lack of preparedness, the increased time and cost required, or some combination of the above. But in fact, just over one-third of all students enrolled in Colorado two-year colleges will graduate in three years or less, and just over one-half of students enrolled in four-year colleges will complete their degrees in six years or less. (NCHEMS 2002b).

Graduation Rates at Two- and Four- Year Colleges, 2004, Colorado and Selected States

STATE	% OF STUDENTS ENROLLED IN TWO-YEAR COLLEGES WHO GRADUATED IN THREE YEARS OR LESS	% OF STUDENTS ENROLLED IN FOUR-YEAR COLLEGES WHO GRADUATED IN SIX YEARS OR LESS
Arizona	50	49.6
Colorado	36.7	51.8
Minnesota	35.8	57.2
Washington	32.5	62.7
US	30.0	55.3
Georgia	28.6	46.3
Oregon	22.8	55.1
New Mexico	20.8	38.1
Texas	18.8	51.0

Source: NCHEMS 2002b

Some System-Based Factors Affecting K-12 Student Achievement

Student success is generally a function of the strengths and challenges an individual student brings to education combined with the ability of an educational system to "add value" to the student's education. Researchers have found that student background and characteristics are often very strongly correlated with that student's academic success. However, researchers have also found that teachers and schools can have a remarkable impact on student achievement, regardless of student background. (Marzano 2000).

Teachers

Teacher quality is the single most important school-based factor influencing student achievement. Research in Tennessee and Texas found that the most effective teachers can offset student disadvantages that would otherwise predict academic failure. (Sanders and Rivers 1996; Hanushek et al. 1998). Thus, one of the most important things we can do for students is to recruit excellent teachers and distribute them equally across the system.

Unfortunately, the measures of teacher quality that we currently have are blunt at best. We know that teachers with some experience are generally more effective than brand-new teachers. We know that it is important for teachers to have both content knowledge and skills in teaching that content. We also know that teachers who have higher verbal abilities (as evidenced by SAT scores, for example), are generally better able to communicate with their students. (Rice 2003). Beyond these rather obvious conclusions, we don't have good ways to predict effective teaching.

SCHOOL TYPE	PERCENTAGE OF CORE ACADEMIC CLASSES TAUGHT BY "HIGHLY QUALIFIED" TEACHERS
Elementary Level (all)	97.1
Elementary - High Poverty Schools	96.0
Elementary - Low Poverty Schools	97.7
Secondary (all)	92.5
Secondary - High Poverty Schools	88.7
Secondary - Low Poverty Schools	95.1

Source: CDE (2006b)

The federal No Child Left Behind Act requires states to ensure that schools employ only "highly qualified" teachers. In general, states must ensure that teachers who teach core content areas in public schools are fully certified and demonstrate their competencies in the subjects they teach. For example, in Colorado, new high school teachers are required to both pass a subject knowledge test and have majored in the subject they will be teaching. No state met NCLB's deadline of having 100% of its teachers highly qualified by the 2005-06 school year. In its most recent Consolidated State Performance Report (2006b), Colorado reports the above percentages of highly qualified teachers for the school year 2004-05.

Some studies have shown that class sizes may affect student achievement, particularly in the lower elementary grades and particularly for at-risk students. In 2000, the average elementary school class size in Colorado was 23.2, above the U.S. average of 21.2. (Education Week 2006a).

Source: ACT (2006a).

Some System-Based Factors Affecting K-12 Student Achievement

Academic Rigor and High Expectations

Some research shows that holding high expectations of students for academic performance can be a self-fulfilling prophecy. Research from the U.S. Department of Education, first released in 1999 and revisited in 2006, found that the rigor of a student's high school curriculum is the best predictor of that student's success in college, outweighing other factors such as student ethnicity and socioeconomic background. (Adelman 1999 and 2006). Studies of high-performing high-poverty schools uniformly point to high expectations as a common thread. (Kannapel et al. 2005; Shannon and Bylsma 2003; Reeves 2000).

ACT researchers have suggested a "core curriculum" to prepare high school students for success in post-secondary education. (ACT 2005). Research from ACT indicates that workplace requirements, as measured by ACT's WorkKeys program, also suggest completion of this core curriculum. (ACT 2006b). The ACT minimum core curriculum includes the following coursework:

- Four years of English
- Three years of mathematics, including Algebra I and II and Geometry
- Three years of social studies, including U.S. History, World History, and American Government
- Three years of science, including General Science, Biology, and Chemistry

Percentage of Graduating Class of 2006 Taking ACT Core or More, by Ethnicity:

RACE/ETHNICITY	% TAKING CORE OR OR MORE – US	% TAKING CORE OR OR MORE – CO	ACT SCORE – CORE	ACT SCORE – LESS THAN CORE
All	54	48	22.0	18.6
Black	53	41	18.3	16.3
Am. Indian	48	41	19.7	16.6
White	56	54	23.0	19.7
Hispanic	52	40	18.6	16.3
Asian	60	55	22.0	19.2
Other/NR	41	39	21.6	18.2

Source: ACT (2006a).

Even as ACT recommends that this curriculum be considered a minimum core for student preparation, and that more rigorous coursework provides better preparation, research indicates that too many students do not take this coursework. In Colorado's graduating class of 2006, 39% of students responding to ACT's survey reported taking less than the ACT-recommended core curriculum. The rigor of the curriculum translates to ACT scores: those students who took the recommended curriculum or more received an ACT composite score of 22.0, while those who took less than the core curriculum scored 18.6. (ACT 2006a). In a recurring theme in Colorado, minority students are much less likely to take the core curriculum, even those who report that they want to attend college. This disparity has a direct impact on the reality of student success in college, a heartbreaking statistic when viewed through the lens of student plans for their own futures.

Average ACT Composite Scores for Student Subgroups Who Plan to Complete at Least a Bachelor's Degree

EDUCATION ASPIRATIONS	ALL GROUPS	BLACK	AM. INDIAN	WHITE	HISPANIC	ASIAN	OTHER
Bachelors Degree	20.2	16.7	18.2	21.2	17.5	19.3	20.0
Graduate Degree	22.8	18.9	18.5	23.7	19.5	22.1	22.3
Professional Level	21.9	18.1	20.2	23.1	18.6	22.7	21.8

Source: ACT (2006a).

Some System-Based Factors Affecting K-12 Student Achievement

Resources

The level and effective use of resources provided to the K-12 education system can affect outcomes in a number of ways. How well does Colorado fund K-12 education? It depends on how you look at it, and how the numbers are calculated. According to the National Education Association, in the 2004-05 school year, Colorado spent $8,337 per student. This compares to the national average of $8,618, ranking us 25th in the country. (NEA 2005). However, according to Education Week's Quality Counts, which adjusts expenditure figures to account for regional cost differences, Colorado spent $7,490 per student in 2003, compared to the national average of $8,041. That ranks us 37th in the country. The table to the right compares Colorado spending using the adjusted Education Week numbers with our peer states.

Another way to look at the numbers is the amount of investment in K-12 the state makes as a percentage of overall wealth. Wealthier states are able to spend more money on K-12 if they choose to, while a relatively small expenditure may represent a large investment by a state with fewer overall resources. The table to the right shows the percentage of taxable wealth in a state that is spent on K-12 education.

Adjusted Per Pupil Expenditures, 2004, Colorado and Selected States

STATE	ADJUSTED PER- PUPIL EXPENDITURES	RANK
Georgia	$8,346	20
Minnesota	$8,270	22
U.S. average	$8,041	--
Oregon	$7,753	31
New Mexico	$7,668	34
Texas	$7,570	36
Colorado	$7,490	37
Washington	$6,985	42
Arizona	$6,331	50

Source: Education Week 2006a.

Percentage of Total Taxable Resources Spent on K-12 Education, 2003, Colorado and Selected States

STATE	PERCENTAGE OF TOTAL RESOURCES	RANK
New Mexico	4.0	13
Georgia	3.85	19
Texas	3.79	26
Minnesota	3.74	27
U.S. average	3.69	--
Arizona	3.55	32
Oregon	3.49	36
Washington	3.23	42
Colorado	3.13	44

Source: Education Week 2006a.

Conclusion

The facts and statistics cited in this report lead inexorably to the conclusion that Colorado could and should be doing better in educating K-12 students. Notably, our state's struggles with educating traditionally at-risk students has resulted in student achievement and high school graduation gaps that are among the largest in the country. If we were to make substantial progress on closing these gaps, our achievement statistics would quickly rise to the top. Many of our peer states face greater challenges than we do in terms of statewide poverty and diverse student populations, yet they have managed to find greater success with closing gaps. Until Colorado finds the collective will, the leadership, and the resources to solve this problem, we will continue to be average when we could be outstanding.

References

ACT. (2006a). "ACT High School Profile Report: The Graduating Class of 2006, Colorado." (Iowa City, IA: Author). Available online at http://www.act.org/news/data/06/index.html

ACT. (2006b). "Ready for College and Ready for Work: Same or Different?" (Iowa City, IA: Author).

ACT. (2005). "Crisis at the Core: Preparing All Students for College and Work." (Iowa City, IA: Author).

Adelman, C. (2006). "The Toolbox Revisited: Paths to Degree Completion from High School Through College." (Washington, DC: U.S. Department of Education.)

Adelman, C. (1999). "Answers in the Tool Box: Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment." (Washington, DC: U.S. Department of Education.)

Annie E. Casey Foundation. (2006). 2006 Kids Count Online Database. Available online at http://www.aecf.org/kidscount.

The Bell Policy Center. (2003). "Ten Years of TABOR." (Denver, CO: Author).

Blansett, S.P. and M.C. Gershwin. (2005). "Developing a Statewide Work Readiness Credential in Colorado: A Preliminary Assessment." Report to the Colorado Workforce Development Council. (Denver CO: Colorado Department of Local Affairs).

Colorado Commission on Higher Education. (2005). "Remedial Education: One-Third of Incoming College Students Unprepared by K-12 High Schools." (Denver, CO: CCHE).

Colorado Commission on Higher Education. "Fall Enrollments by Institution, Fall Terms 2002-04." Retrieved on August 17, 2006, from http://highered.colorado.gov/Reports/Enrollment/fy02-04/inst.html.

Colorado Department of Education (2006a). "Colorado Preschool Program: 2006 Legislative Report." (Denver, CO: Author).

Colorado Department of Education. (2006b). "Consolidated State Performance Report: Parts I and II." (Denver, CO: Author).

Colorado Department of Education. (2005). "Understanding Colorado School Finance and Categorical Program Funding." Available online at http://www.cde.state.co.us/cdefinance/download/FY2005-06Brochure.doc

Colorado Department of Education. (2005). Fall Pupil Membership Comparisons from 1985 to 2005. Available online at http://www.cde.state.co.us/cdereval/download/PDF/2005PM/State/Comparisons1985-05.pdf.

Colorado Department of Education (2005). Pupil Counts by Race/Ethnicity Comparisons (1985-1995-2005). Available online at http://www.cde.state.co.us/cdereval/download/PDF/2005PM/State/10YrTrenddataRE.pdf.

Colorado Department of Education. "Colorado Model Content Standards." Available online at http://www.cde.state.co.us/cdeassess/documents/OLR/k12_standards.html

Colorado Department of Education. "FY 2004-05 District Revenues and Expenditures, Comparison of Revenues and Other Sources." Available online at http://www.cde.state.co.us/cdefinance/FY04-05RevExp.htm

Donnell-Kay Foundation, Colorado Children's Campaign, Center for Education Policy Analysis, and the Piton Foundation. (2006). "The Achievement Gap: Colorado's Biggest (Education) Problem." (Denver, CO: Authors).

Education Week. (2006a). "Quality Counts 2006." (Bethesda, MD: Editorial Projects in Education).

Education Week. (2006b). "Diplomas Count." (Bethesda, MD: Editorial Projects in Education).

Governor's Blue Ribbon Panel on Higher Education for the 21st Century (2003). "Final Report." (Denver, CO: Colorado Department of Higher Education).

Hanushek, E., J. Kain, and S. G. Rivkin. (1998, revised 2002.) Teachers, Schools and Academic Achievement, NBER Working Paper No. 6691. (Cambridge, MA: National Bureau of Economic Research.)

Joint Budget Committee, State of Colorado. (2006). "Fiscal Year 2006-07 Appropriations Report." (Denver, CO: Author.)

Kannapel, P. and Clements, S., with Taylor, D., and Hibpshman, T. (2005). "Inside the Black Box of High-Performing High-Poverty Schools." (Lexington, KY: Prichard Committee for Academic Excellence).

Klein, Walt. (2006). "Business Education Roundtable: Summary of Findings." Available online at www.fund4colorado.org.

Kober, N. (2006). "A Public Education Primer: Basic (and Sometimes Surprising) Facts about the U.S. Education System." (Washington, DC: Center on Education Policy).

Marzano, R. (2000). "A New Era of School Reform: Going Where the Research Takes Us." (Aurora, CO: Mid-Continent Research for Education and Learning).

Metro Denver Economic Development Corporation. (2005). "Toward a More Competitive Colorado." (Denver: Author).

Mortenson, T. (2006). "Chance for College by Age 19 by State, 2004." Postsecondary Education Opportunity, no. 169. (Oskaloosa, IA: The Mortenson Research Seminar on Public Policy Analysis of Opportunity for Postsecondary Education.)

National Center for Higher Education Management Systems. (2002a). "College-Going Rates of High School Graduates – Directly From High School." Available online at www.higheredinfo.org.

National Center for Higher Education Management Systems. (2002b). "Graduation Rates." Available online at www.higheredinfo.org.

National Education Association. (2005). "Rankings and Estimates: Rankings of the States 2004 and Estimates of School Statistics 2005." (Washington DC: Author.)

National Research Council. (1998). *Preventing Reading Difficulties in Young Children.* (Washington, DC: National Academy Press).

Parrish, T., Harr, J., Wolman, J., Anthony, J., Merickel, A., and P. Esra. (2004). "State Special Education Finance Systems, 1999-2000." (Palo Alto CA: Center for Special Education Finance).

Reeves, D. (2000). *Accountability in Action: A Blueprint for Learning Organizations*. (Denver, CO: Advanced Learning Press).

Rice, J. R. 2003. *Teacher Quality, Understanding the Effectiveness of Teacher Attributes.* (Washington, D.C.: Economic Policy Institute.)

Sanders, W. L. and J.C. Rivers. (1996.) "Research Project Report: Cumulative and Residual Effects of Teachers on Future Student Academic Achievement." (Knoxville, TN: University of Tennessee Value–Added Research and Assessment Center.) Retrieved February 26, 2002, from http://www.mdk12.org/practices/ensure/tva/tva_2.html As of November 1, 2005, is located at http://www.heartland.org/pdf/21803a.pdf.

Shannon, S. and P. Bylsma. (2003). "Nine Characteristics of High-Performing Schools." (Olympia, WA: Office of the Superintendent of Public Instruction).

United States Census Bureau. (2006). "2005 American Community Survey." (Washington, DC: Author).

Wertheimer, R., Croan, T., Moore, K.A., and E. Hair. (2003). "Attending Kindergarten and Already Behind: A Statistical Portrait of Vulnerable Young Children." ChildTrends Research Brief No. 2003-20. (Washington, DC: ChildTrends).

Hot Topics: What you Need to Know About... Denver's Preschool Initiative

Beverly Buck

Preschool for four-year-olds—it's been a front page news item, at least in Denver, where it will be on the November ballot. But why? Because quality early education is one of the few interventions proven to make a difference in later student achievement outcomes.

Colorado teachers report that one-third of children come to kindergarten unprepared to learn. These are the children who enter kindergarten never having read a book with their parents, and who do not understand the relationship between letters and sounds. They may not know how to cut with scissors, hold a pencil or crayon in a writer's grip, or recognize the letters of the alphabet, shapes, or colors. These are the children who have never sat in circle time or had a structured place to practice the social skills necessary for academic success. They don't know how to follow the rules, pay attention, or resolve conflicts with others. Once these children fall behind their peers, catching up is hard work. Up to half of the gaps in student achievement experienced by low income and minority children are evident at the time of kindergarten entry.

Four decades of research has shown that 80% of a child's brain development happens before age five. Quality preschool programs can capitalize on that development and provide children with the critical pre-academic skills, self-confidence, and social know-how that pave the way for success in kindergarten, elementary school, middle school…all the way through life. A recent Piton Foundation study of assessment data from kindergarten students in Denver Public Schools found that the more early education the children received, the better their chances of reading at or above grade level going into first grade. Economic analysts, including Nobel Prize winners, corporate leaders, and the Federal Reserve Bank, have shown that spending on early childhood education pays a higher return on investment because the prevention of poor educational performance costs less than its remediation.

If quality early education provides a foundation for school readiness and later school success, then broadly accessible early education—sometimes called universal preschool—levels the playing field and promotes education equity. It improves public schools' abilities to meet No Child Left Behind standards, as well as providing a return on investment to society, and eases the financial burden on working parents who require child care.

Universal preschool is already occurring in some states. Illinois joined Florida, Georgia, and Oklahoma in requiring universally available preschool for all three- and four-year-olds in that state. Virginia has announced a goal of universal pre-K for every four-year-old in the state by 2008. While California voters recently defeated a universal preschool ballot initiative, the Governor and the state legislature did substantially expand funds for public preschool, as have lawmakers in 26 states, including Colorado. (Colorado ranks 22nd out of 50 for spending and enrollment in the publicly funded Colorado Preschool Program, which, during the 2005-06 school year, served 10,860 preschool children at risk of academic failure. This number is about 15% of Colorado's population of four-year-old children. At least 5,715 additional children were eligible for CPP but not served due to a lack of funded slots.)

Denver's Proposal – The Devil is in the Details

The proposed Denver Preschool Program, which needs voter approval in November, highlights some of the challenges and opportunities in funding universal preschool. Denver floated kids' taxes for preschool to voters in 2000 and 2001. The new proposal is fundamentally different in several different ways: it proposes a significantly smaller tax increase; it specifically focuses on expanding access to preschool for Denver four-year-olds; it provides greater clarity on administration; and the money will go to an independent non-profit organization, not the city.

Assuring Quality

Even though the early education research community is clear on links between quality early childhood education and school readiness, there is ample recognition of an interlocking set of challenges when public dollars are at issue. For example, how will Denver define and then assure "quality" by each type of provider? The concept of "quality" includes the resources that influence the kinds of experiences children have on a day-to-day basis, such as teacher-to-student ratios, teacher education and professional development, and licensing requirements. One immediate example is teacher quality. Experts advocate that instructors of preschool-aged children should not be held to lower standards than kindergarten teachers in public schools. Colorado's relatively low statewide rating for preschool teacher quality is a result of our failure to require that preschool children be taught by teachers with at least college degrees and teaching assistants who have completed certificate degrees. The Denver proposal will have to devise a standard menu of quality but

Hot Topics: What you Need to Know About... Denver's Preschool Initiative

The Denver Preschool Program

Denver's November ballot will ask voters to raise the sales tax rate .0012 percent (1.2 cents on every $10 purchase or 12 cents per $100) to fund a high quality, parental choice preschool program for Denver's 4-year-olds. The sales tax, which would sunset in 10 years, would raise approximately $12 million per year to be used primarily for tuition credits for families and quality improvement funds for providers. The plan would be open to all Denver children the year before they are eligible to enter public kindergarten. Families will receive tuition credits to use at the preschool of their choice, assessed on a sliding scale based on financial need and the quality of the preschool program. (Low-income families choosing higher quality preschool programs will receive the largest credit). Parents would be able to use the tuition credits with Headstart, CCAPP (Colorado Childcare Assistance Program), the Colorado Preschool Program, and other currently funded early childhood education and childcare programs. They would also be able to use them with any state-licensed child care provider type (public, private, for-profit, non-profit, home-based, center-based, school-based and faith-based providers), as long as those providers have a commitment to quality. All participating providers must demonstrate this commitment by participating in a three-part quality improvement system that includes an introduction to quality practices, an objective quality rating, and a quality improvement plan. Part of the revenues generated by the tax will be used to help providers improve quality.

The Program would be administered by an independent Board of Directors responsible for making financial decisions, comprised of business people, representatives from non-profits and public programs, and one member of the Denver City Council. A Board of Advisors, which would include preschool providers, parents and leaders from the education, non-profit, foundation and business communities, will advise on all policy issues. The Mayor would appoint both boards; the City Council must approve the appointments. The Boards will be charged to report annually on the number of children, the quality ratings of the providers, the financial health of the program, and the academic success of the children. The plan directs the Board of Directors and Board of Advisors to contract with a qualified company to design and implement the quality improvement system, and to play a role in helping to establish objective criteria for the quality rating.

The bulk of the tax revenue would go to the tuition credits and development of a quality improvement system pegged to industry standards, technical assistance, and grants to foster providers' quality improvement. The remaining tax revenue would go to outreach and enrollment of children and providers, and measurement and reporting. Program administration will be limited to five percent of tax revenue.

This plan is the result of two-and-a-half years of work by a mayoral task force of civic, business, and education leaders. They were charged with learning about the importance of early care and education and making a recommendation regarding how Denver could serve its youngest citizens.

at the same time allow some flexibility to capitalize on the relative strengths afforded by the diversity of provider types.

A "quality" early childhood program also requires the provider to make continuous improvements in each setting, not only for each group of children, but ideally for each child. For example, in Colorado, a full one-third of children in immigrant families live in linguistically isolated households (no household member over 14 years of age speaks English "very well"). Yet Colorado has no early childhood standard that specifically addresses the needs of English language learners. Denver's ethnically, linguistically, and economically diverse population of children and families will pose a challenge to individual providers and the new program administration as they make sense of the nature and quality of experiences and the relationship of program attributes to child outcomes. This leads us to the challenge of accountability.

Accountability supports quality, but the desire to measure something may cause program administrators to miss the forest for the trees. Can the Denver Preschool Program be accountable to voters in its administration of funds, while also measuring its effectiveness through increases in provider quality and demonstrating longer term outcomes for children who participate in the program? Simply counting the number of children who enroll, the number of providers who enter a quality improvement program, and reviewing results of student "readiness tests" may not provide an accurate picture of either an individual

preschool's quality or the success of the entire program. A truly useful accounting will include observations and assessments by education experts and parents, with the ongoing results provided in timely and reader-friendly means to parents, educators, and policymakers. Since this tax will sunset within a ten-year period, true accountability would allow the community to use results to reward success and force change.

Making Connections With K-12 Schools, Communities, and Parents

Whether it is part of P-3, P-16, or PreK-20, preschool education must be connected to later schooling in a coherent fashion. How will the Denver Preschool Program put public schools, providers of early childhood education, and parents on the same page, i.e., so that everyone thoroughly understands both how young children learn and what they learn once in kindergarten and elementary school? This takes us back to the quality challenge and assuring that any "curriculum" and "quality rating criteria" both respect and coordinate the developmental appropriateness of activities for young children who still need to play to learn and the pressures of accountability initiatives such as No Child Left Behind. Since we already know that "it takes a village," preschool programs must be integrated with other systems serving young children and their families (health, education, child welfare, transportation, wraparound child care, etc.). At the very least, lack of integration across these systems may limit the extent to which preschool programs' intended and unintended outcomes can be tracked, reported, effectively analyzed, and used for quality improvements.

The current debates over immigration pose additional challenges. According to the latest census figures about 35%, or 51,160, of Denver's Hispanic population is less than five years old (as opposed to 14.5% nationwide). Only 20% of these children are already enrolled in some form of preschool programs. Research shows that these children are less likely than their Anglo peers to start school with the basic math and reading skills needed for academic success. The majority of these children are U.S. citizens, even if their parents are not. If preschool education programs funded by public dollars require citizenship information or information such as Social Security numbers during enrollment, parents may be dissuaded from pursuing the educational opportunities their children need, even though citizenship status is not a permissible basis for denying access to public education.

A solid connection to parents has to be part of the equation. It's more than making slots available. The challenge for the Denver proposal will be to convince Denver parents why preschool education is important and how they can get and stay involved with their child's education well before children enter kindergarten and convince them the program is worth funding.

Funding the Future

The last big challenges are ones that often go hand-in-hand: financing and politics. Is there enough money to make a difference and assure quality? Should preschool is treated like a less-deserving stepchild of public education, receiving less funding per child, when 80% of brain development happens before the age of five? What do we need to do to assure local capacity of schools and continued progress for Denver children if they exit preschool fully "ready to learn"?

Conclusion

Starting early with universal preschool is a strategy with promise. Along with accessible, quality preschool within an aligned preK-16 education system, we need to apply sustained energy and attention to a group of strategies which ensure we are narrowing the achievement gap by race, ethnicity, and income. This means asking our community leaders, our teachers, our political candidates, and ourselves what we will do to help.

For references used in this article, contact Beverly Buck at the Center for Education Policy Analysis, Graduate School of Public Affairs, University of Colorado at Denver and Health Sciences Center.

To learn more, visit these resources:

Denver Preschool Program
www.preschooldenver.org

"Early Childhood Education in Denver 2006 Presentation." A compilation of statistics, research, and programs, available from the Piton Foundation, *www.piton.org*

Colorado School Readiness Indicators Project
http://www.schoolreadinesscolorado.org/PDF/readiness.pdf

National Institute for Early Education Research *www.nieer.org*
This organization conducts research on early childhood education and publishes an annual yearbook of ECE statistics and rankings in the states.

Committee for Economic Development *www.ced.org*
The Committee for Economic Development supports early childhood education as a powerful tool for economic development.

Hot Topics: What you Need to Know About... Amendment 39 and Referendum J

Kelly Hupfeld

On November 7, Colorado voters will decide on two ballot issues that would require school districts to spend at least 65% of their operational expenditures on certain items. Amendment 39 requires the money to be spent on "classroom instruction expenditures," while Referendum J requires the money to be spent on "services that directly affect student achievement." According to Colorado's Legislative Council, the two issues would require spending in the following areas included in their respective 65% requirements:

EXPENDITURE ITEM	INCLUDED IN AMENDMENT 39?	INCLUDED IN REFERENDUM J?
Teachers, classroom aids & tutors	x	x
Libraries & librarians	x	x
Books & other instructional materials	x	x
Classroom computers	x	x
Field trips, athletics, arts & music	x	x
Principals		x
Support staff (guidance counselors,nurses, bus drivers & food service)		x
Support services provided at the school level (teacher training, student testing,college placement services, student health and medicalservices, food services & transportation		x
Superintendents & school boards		
Building construction, maintenance & repairs		
Central administrative functions (payroll, accounting & budgeting)		

Currently, school districts spend an average of 60% of their operating budgets on the items required by Amendment 39, and an average of 83% of the items required by Referendum J. According to Legislative Council, if Amendment 39 had been in place in 2004-05, 166 out of Colorado's 178 school districts would not have met its requirements, including all metro-area districts with the exception of St. Vrain. The Denver Public Schools, for example, spends just 51.55% of its operating budget on Amendment 39-related items. School districts fare much better under Referendum J – just three districts would have been out of compliance.

Amendment 39 came to Colorado through a national effort to direct district spending, led by an organization called First Class Education. FCE was founded by Tim Mooney, a Republican political consultant from Arizona, and receives most of its funding from the chairman of Overstock.com. The goal behind FCE, according to a New York Times interview with Mooney, is to require school districts to make their operations more efficient and thereby free up money for the classroom. The group's website has a section that focuses on examples of wasteful administrative spending.

In Colorado, the campaign for Amendment 39 has been supported by such prominent local Republican leaders as Rep. Joe Stengel and Lt. Gov. Jane Norton. The campaign gathered 103,000 signatures to qualify for the November ballot. In response, the Democratic leadership of the state legislature spearheaded passage of Referendum J as an alternative, tweaking the language of Amendment 39 slightly to make its provisions more flexible. Voters will see both measures on the November ballot. If both measures pass, it is likely that Amendment 39, which amends the state constitution, will take precedence over Referendum J, a statutory amendment.

FCE has been successful in putting the "65% solution," as it is called by its backers, on the agenda of other states as well as Colorado, although it has been less successful in getting the measure passed. According to the National Education Association, Georgia and Texas have approved the 65% spending requirement, while Kansas' legislature passed a bill encouraging, but not requiring, districts to meet a 65% spending goal. In addition to Colorado, voters in Oklahoma may see the issue on their November ballot, although the ballot language is currently being challenged in that state. Legislatures in ten states rejected the measure, and 2006 ballot measures have been withdrawn in Arizona, Oregon, and Washington.

The fundamental assumption behind Amendment 39 appears to be that a reallocation of funding away from administrative and support functions and into the classroom will benefit students. The assumption is twofold: first, that certain administrative and support functions are not necessary, or at least not as important as activities directly supporting student instruction; and second, that more resources in the classroom will translate into improved student achievement. These two assumptions have been the subject of much research and debate.

Shifting resources from administrative and support services to the classroom may make sense if there is little or no benefit derived from those services – if they are in fact wasteful, as backers of Amendment 39 claim. If on the other hand, districts are spending their funds efficiently according to their respective situations, a reallocation of funds may cause some districts to make choices that do not benefit their students.

What do school districts spend their money on? A review of Colorado districts' finances reveal a great deal of spending disparity

Hot Topics: What you Need to Know About... Amendment 39 and Referendum J

among districts, some of which can be explained by the wide variety in district characteristics. For example, although the average district in Colorado spends 2.4% of its budget on student transportation, many rural districts spend much more, and small and compact urban districts tend to spend less. For example, the Stratton school district in Kit Carson County and the Woodlin district in Washington County each spend 9.7% of their budgets on transportation, while Cheyenne Mountain spends just 0.5% and Englewood spends just 1.3%. While the Branson school district is in rural Kit Carson County, the majority of its students attend via online courses. Not surprisingly, its transportation costs are extremely low (and in fact, it is one of the few districts already meeting Amendment 39's requirements).

Another variation among districts is spending on their school facilities. While the state average is 7.3%, many rural districts with older buildings spend 15% or more on operations and maintenance. On the other hand, districts with newer facilities tend to spend less: the Douglas, Eagle, and Gilpin districts each spend less than 5% on operations and maintenance.

Finally, other features such as the characteristics of district students and district reform initiatives may affect spending. For example, districts with large numbers of students from poverty backgrounds may choose to spend more on student support services. Districts undergoing substantial reform efforts may temporarily spend more on administrative services, viewing these efforts as investments in students' academic futures. A number of the metro-area districts may conceivably be missing the 65% mark in part because of these expenditures.

That said, there are undoubtedly examples throughout the state of wasteful spending by school districts, just as any business would not be immune from individual anecdotes of waste. The challenge for voters will be to decide whether Amendment 39 provides the best reallocation tool for directing efficient education spending.

The second assumption underlying the 65% solution is that more money in the classroom translates into improved student achievement. This conclusion was challenged by a report from Standard & Poor's. Known for its prominence in the financial rating and evaluation field, S&P also operates school evaluation services and makes education data and analysis available on a website called SchoolMatters.com. S&P reached the following conclusion:

Standard & Poor's analysis of district level spending and student achievement data in the states that are currently considering a 65 Percent Solution reveals that higher instructional spending allocations are not consistently linked to higher achievement levels. This does not mean that how districts spend their money does not matter; in fact, allocating more money to instruction is a laudable goal. However, mandating a specific spending allocation is not likely to provide a "silver bullet" solution to raising student achievement. The wide range in districts' academic proficiency rates at any given spending allocation suggests that the specific ways that school districts use their instructional dollars may have as much, if not more, of an impact on student achievement as the percentage of dollars spent in the classroom.

The Bell Policy Center recently released a Colorado-specific report that came to the same conclusion about the relationship between district spending on the items required by Amendment 39 and student achievement in the district.

Whether or not Amendment 39 and/or Referendum J pass, finding ways to make the most of limited school resources will continue to be a huge issue for Colorado and states nationwide. Capitalizing on publicity about the 65% solution, the conservative Fordham Foundation released a June 2006 report touting what it call the "100% solution." Fordham and many other organizations advocate "weighted student funding," designed to direct the most resources to the neediest students. In a weighted student funding environment, each student would be assigned a level of funding based on his or her characteristics, such as family income level, mastery of the English language, or special education needs, for example. That amount would then follow the student to whatever public school he or she chose to attend. Backers of weighted student funding argue that this approach gives individual schools the flexibility and resources to handle the needs of the students they serve, in contrast to the 65% solution, which mandates inflexibility.

Yet another view is that we do not adequately fund our education system in its entirety, and the debate over rearranging allocations is like cutting a small pie into increasingly tiny pieces. Colorado, like many other states, has a lawsuit pending that alleges the state does not provide sufficient funding to meet its constitutional requirements to provide a "thorough and uniform" system of public education.

For refrences used in this article, contact Kelly Hupfeld through The Center for Education Policy Analysis.

For more information:

Colorado Department of Education, School Finance section: *http://www.cde.state.co.us/index_finance.htm*

First Class Education: *http://www.firstclasseducation.org*

Standard & Poor's 65% Solution report: *http://www.schoolmatters.com/pdf/65_paper_schoolmatters.pdf*

Bell Policy Center 65% Solution report: *http://www.thebell.org/pdf/IssueBrfs/06-08-65Percent.pdf*

Fordham Foundation's "100% Solution" website: *http://www.100percentsolution.org*

Hot Topics: What you Need to Know About... the Future of Teaching in Colorado

Robert Reichardt

It may seem amazing now, but in the 1970s and 80s there was a debate in the research community about whether teachers mattered to student achievement. The debate was based on a flawed but common reading of the 1966 Coleman report. Improved data that emerged in the late 1980s and 1990s finally resolved the debate: not only do teachers matter, but they are the most important tool the public has for raising student achievement. However, knowing that teacher quality is important does not tell us how to improve teacher quality.

What we do know is that there are several things that do seem to improve teacher quality.

- **Increased retention.** It is very clear teacher quality improves with experience, particularly over the first three years of experience.
- **Subject matter preparation** Teachers with subject matter preparation in math and science improve student learning in those subjects at the secondary level.
- **Smarter teachers.** On average a teacher with higher assessment scores or who attended a more elite college is better able to support student learning.
- **Preparation.** Teachers who are prepared and trained before they enter teaching generally do better in their first few years of teaching.

Taken together, these measures still do not completely help policymakers identify what makes a quality teacher. In fact, researchers estimate that at most they measure no more than 10% of what makes a good teacher. There are many important factors that are unknown to researchers and policymakers.

Through the implementation of standards-based reform, the state and the nation have clearly set the goal of high achievement for all children. However, there is strong evidence that children who have the most problems reaching high achievement, i.e. poor and minority children, do not have the same access to high quality teachers as white and non-poor students. This difference in access to quality teachers between white and minority students and poor and non-poor students is often called the "teacher gap." And this teacher gap is a complex problem because it is clearly more of a problem in some districts than in others, and there is evidence from other states that it is more of a problem in some schools than in others. However, while the need and challenges are apparent, the solutions are not clear.

Supporting and improving the quality of Colorado's 47,500 teachers is a particular challenge for state-level policymakers. While the state of Colorado pays for 60% of education funding and the majority of those funds pay for teacher salaries, the state has few direct tools or additional resources to improve the quality of the state's teacher workforce. The tool most often used is licensure since it is a traditional, low-cost (to the state) policy lever. Through this regulatory system, which is not clearly linked to teacher quality, the state sets minimum standards for who can become and remain a public school teacher in Colorado. In Colorado there are essentially three routes to becoming a teacher: traditional preparation through a college or university, alternative preparation, and being trained in another state. A teacher licensed in another state can become certified in Colorado without any extra training, so the current state licensure system most directly affects those teachers trained in Colorado. New teachers make up about 6% to 8% of all teachers, and about 50% of all new teachers are trained in other states. Licensure is a tool weakly linked to student achievement that directly affects only about 3% to 4% of the teacher workforce at any one time.

However, policymakers at the district and school level do have many tools to affect teacher quality. Districts and schools recruit, hire, fire, induct, train, evaluate, pay, and equip teachers. And Colorado districts have a long history of innovation with those tools. For example, Colorado districts are national leaders in teacher compensation innovation. The longstanding Douglas County Pay for Performance Plan has evidence of increased retention. Newer systems like the Denver ProComp and the Eagle County TAP programs are research-based with significant potential. So while the state has relatively weak tools to support quality teaching, Colorado districts have a toolbox full of teacher quality polices and a history of innovation.

The challenge policymakers face at both the state and local level is to support innovation in policy and practice that leads to the improvement of teacher quality. Since the majority of these programs are at the district and school level, the support must focus on increasing capacity at the school and district level. This will create new roles for policymakers at every level.

What may provide an opportunity to meet this challenge is the presence of standards-based reforms and choice in Colorado. These reforms provide schools and districts with new, stronger incentives to improve teacher quality and an explosion of data and information available to support the policies and practices needed to improve teacher quality. This new data supports powerful research and evaluation to help districts and schools learn when their innovations are working and how to improve programs that are not meeting expectations.

Hot Topics: What you Need to Know About... the Future of Teaching in Colorado

There is already a history in Colorado of using data, research and evaluation to support teacher quality improvement efforts. For example, St. Vrain School District was able to use an evaluation of its induction program to show its value to improving teacher quality. Another example is the Denver Public Schools ProComp system, which used the evaluation of an initial pilot project in the development of the final pay system. Finally, the Colorado Consortium for Data-Driven Decisionmaking project (C2D3), based at the University of Colorado at Denver, is a national leader in using data to improve instructional practice. Unfortunately, this use of data, research, and evaluation to support teacher quality is the exception rather than the rule.

The state has a unique role as data provider and capacity builder to help exploit the new opportunities presented by standards-based reform. While districts will continue to develop sophisticated and valuable data systems, only the state can collect, analyze, and provide data that allows districts to learn how they are doing in comparison with other districts. At the same time the state has a unique opportunity to bring districts together to learn from each other and from outside experts. This means the state should:

- Create a system of value-added teacher data as soon as possible.
- Create a data warehouse that allows districts and credible independent researchers to access data about teacher quality to help identify and learn about successful (and failing) programs throughout the state.
- Develop networks of data users at the district level to build the capacity of districts to use value-added data to learn about best practices and local innovations in data use.
- Continue to hold districts and schools accountable for learning by all students.

Districts have control over most of the powerful tools for improving teacher quality and the newly available assessment data creates new opportunities to learn whether their programs are effective and what makes them effective. District leaders (school board members and superintendents) should now ask questions about their programs, including:

- Are the teachers we hire as effective as other new hires in similar districts?
- Do our recruiting and hiring practices help us hire the most effective teachers?
- Are our most effective teachers working with the students who need the most support to reach our learning goals?
- Are we effectively identifying, supporting, and if necessary removing our struggling teachers?
- Are our induction programs helping us retain teachers and support quality teaching compared to similar districts?
- Is our evaluation system identifying and supporting our best teachers?
- Is our professional development program making a difference in student learning?
- Are we investing in books and materials that are helping our teachers and students succeed?

Colorado has new challenges and opportunities to improve teacher quality. The challenges are twofold: First we must improve teacher quality throughout the state to meet our educational goals. Second, we must ensure that all students have access to quality teachers. The opportunities are impressive. Individual districts with their own value-added systems can now identify and learn from successful programs and practices in ways never before available, and if a value-added system is implemented statewide these opportunities are greatly magnified. However, seizing these opportunities requires that leaders and policymakers embrace new roles. State level leaders must focus on supporting good policy at the local level through a combination of tools and data to learn about programs and continued high expectations for student learning. District leaders must ask for evidence on whether their teacher quality programs are working and what makes the best programs in the state successful. Before now, providing that kind of information was nearly impossible. In the near future policymakers will have new tools to support teacher quality and to reach our educational goals.

For references used in this article, contact Robert Reichardt at the Center for Education Policy Analysis, Graduate School of Public Affairs, University of Colorado at Denver and Health Sciences Center.

Center for Education Policy Analysis
Graduate School of Public Affairs
University of Colorado at Denver and
Health Sciences Center
1380 Lawrence Street, Suite 500
Denver, CO 80204

Non Profit
Organization
US Postage PAID
Permit No. 831
Denver, CO