COLORADO CHILDREN'S CAMPAIGN
Creating Hope and Opportunity in Colorado, One Million Kids at a Time
September 2009

Widening the Gap: The Potential Impact of Eliminating the Colorado Preschool Program

Colorado has seen a growing gap in the achievement of poor and low-income students compared to their more affluent peers. A widening achievement gap has short- and long-term implications for children, as well as the state. Research suggests that high-quality early childhood programs are an effective way to reduce or even eliminate achievement gaps. The Colorado Preschool Program (CPP) is an example of such a program. It has proven to be very effective in closing achievement gaps and preparing children to enter school ready to succeed.

Given the current fiscal realities, and the inevitability of state budget cuts in the future, it is important to understand the value of programs that may be hurt by cuts. While Amendment 23 protects K-12 education spending, CPP is not subject to any protections and is thus vulnerable to reduction or elimination. Eliminating CPP would widen an already large achievement gap. In the long-run, any financial savings from eliminating CPP would be offset by increased needs for spending in K-12 education to remediate failing students and in the social costs of a serving a poorly-educated citizenry.

This Policy Brief estimates the impact that eliminating CPP would have on the achievement gap. Eliminating CPP would potentially increase the achievement gap between low-income students and their more affluent peers by 3.8 percent to 7.7 percent. (For the purposes of this analysis, low-income students are defined as those eligible for free or reduced price lunch (FRPL). Their more affluent peers are those who are not eligible for FRPL.) The proficiency rates of both low-income and more affluent students would decrease if CPP were eliminated; but because three out of four of the children served by CPP are low-income, the decrease in the percent of students passing the test would be far greater among the state's low-income children. Overall, eliminating CPP could possibly increase the number of third graders that do not reach proficiency on state assessments by more than 3,000.

It is important to acknowledge that there are limitations to our effect modeling. Beyond participation in CPP, it is impossible to model for many additional effects that also impact achievement, including factors such as student mobility. Many students in CPP, for example, may leave the state later, just as other children may move into the state who may have attended other quality child care programs. Furthermore, CDE currently cannot determine the statewide effect of participating in CPP. Despite these limitations, the data available used to model the effect of CPP allows us to create a "ballpark" estimate that can be used when considering the potential impact of eliminating the program.

Achievement Gap in Colorado

The difference in performance between low-income students and their wealthier peers is evident in the results of 2009 Colorado Student Assessment Program (CSAP). Overall, low-income students are about 30 percent less likely than their more affluent peers to pass state tests. Data from the last three years indicate some success in narrowing the achievement gap in reading, but increasing gaps in writing and math. While the percent of low-income students that scored proficient or advanced on the third grade assessment is increasing, the percentage of more affluent students that pass the test is increasing at a faster rate.

Table I: Achievement Gaps on Third Grade CSAP Between FRPL and Non-FRPL Eligible Students; Difference in Percent of Students Scoring Proficient or Advanced for Each Group.

	Reading	Writing	Math
2007	34%	31%	28%
2008	28%	34%	29%
2009	28%	33%	31%

Source: Colorado Department of Education

Many research studies suggest that delivering high-quality preschool and other early childhood programs can help to narrow achievement gaps. These programs promote optimal cognitive, social, physical and emotional development, all critical to school readiness. Children who participate in such programs are more likely to experience positive long-term outcomes including higher high school graduation rates, higher rates of college attendance, lower teen pregnancy rates, higher rates of employment, and higher income.[1]

[1] National Governors Association. Early Childhood Care and Education. Closing the Achievement Gap.

Colorado Preschool Program

CPP has proven to be an effective early childhood program for at-risk children. CPP offers preschool to at-risk three- and four-year olds across Colorado. With more than 170 school districts participating, there are currently 20,160 CPP slots, enough to serve 27.8 percent of the four-year olds in the state.[2] About 76.1 percent of CPP students are four years old. In order to be eligible for CPP, three- and four-year olds must be found to be exposed to specific risk factors that may hinder development (three-year olds must be exposed to at least three of the risk factors, while four-year olds must be exposed to at least one). Those at-risk factors include:

- Eligibility for free or reduced-priced lunch status;
- Homelessness of the child's family;
- An abusive adult residing in the home of the child;
- Drug or alcohol abuse in the child's family;
- Either parent of the child was less than eighteen years of age and unmarried at the time of the birth of the child;
- The child's parent or guardian has not successfully completed a high school education or its equivalent;
- Frequent relocation by the child's family to new residences; and
- Poor social skills of the child.[3]

In the 2007-08 school year, 77.4 percent of CPP students were eligible for free or reduced price lunch, while 22.6 percent were not.[4]

Districts Results of CPP

Many districts have seen positive results from students that have participated in CPP. Highlights include:

Boulder Valley School District: Students that participated in CPP outperformed students eligible for free and reduced lunch by 16 percent on the third grade writing CSAP.[5] Additionally, CPP students outperformed free and reduced price lunch students by 19 percent and Title 1 students by nine percent.[6]

Adams 12 Five Star Schools: 77 percent of CPP graduates scored proficient or advanced on the reading assessment compared to 67 percent for Adams 12 third graders who were not in a CPP program in preschool and 38 percent in Title 1 schools that did not participate in CPP.[7]

Denver Public Schools: DPS estimates a 10 percent gap between CPP and non-CPP on proficiency through 10th grade.[8]

CPP has also demonstrated the ability to close the achievement gap with children that do not participate in the program. For four- and five-year olds assessed under the Results Matter assessment program, students that participated in CPP closed the achievement gap with students that did not participate in CPP on the Creative Curriculum Developmental Progress assessment from Fall 2007 to Spring 2008.[9]

CPP has had a long history of positive results for its students. Precisely measuring the effect of CPP is not possible. However, a range of positive effects can be attributed to the program. Eliminating the program would threaten the progress Colorado has made in closing those gaps and exacerbate the disparities that already exist between students based on free lunch status.

Estimated Impact of Eliminating CPP

Based on existing program data on CPP, and extrapolating district level data to make state level estimates on student performance as a result of participating in CPP, we can estimate the impact eliminating CPP would have on the achievement gap. The state currently does not maintain data on state-level effects of CPP participation on CPP proficiency. However we can estimate the number of at-risk children who are currently enrolled in CPP who are likely to pass the third grade CSAP because they participated in the program but who would have been expected to fail if they had not participated in the program. How many children fall into this category depends on the estimated impact of CPP participation on the percent of students who pass the test. We refer to this as the estimated effect of CPP participation. For example, if a group of students are expected to pass the test 56 percent of the time, and CPP had no effect on their likelihood of passing the test, the estimated

[2] Colorado Department of Education. *Colorado Preschool Program. 2009 Legislative Report.* p.2.
[3] Colorado Department of Education. Guidelines for the 2009-2010 *Colorado Preschool Program Reapplication and Annual Report.*
[4] Colorado Department of Education. *Colorado Preschool Program. 2009 Legislative Report.* p.4
[5] Ibid, p. 11
[6] Ibid, p. 11
[7] Ibid, p. 11
[8] Ibid, p. 11
[9] Ibid, p. 6

effect would be zero percent. If CPP had an estimated effect of 10 percent, the likelihood of passing the test would raise to 66 percent. This means that out of a group of 100 low-income students, if none participated in CPP, we would expect 56 to pass the test; but because all 100 students participated in CPP, we expect 66 students to pass the test. This means that 10 more students in our example passed the test because of CPP than would have passed without the program. Likewise, if the CPP had a 20 percent estimated effect, 76 percent of the CPP students would be expected to pass the test. The numbers of CPP students scoring proficient or advanced on the third grade reading CSAP given various estimated effect sizes are presented in Table 2.

Using the current available CPP program data, we can look specifically at the cohort of four-year olds. These are a group of Colorado children who will likely take the third grade CSAP four years later.[10] Out of 21,160 children in CPP in 2009, 76.1 percent, or about 15,341 children, are four-year olds. Of those four-year olds, 77.4 percent are low-income. This means that nearly 11,875 low-income four-year olds are served by CPP. About 3,467 four-year olds who are not low-income, but who are still extremely at-risk for academic failure because of several other reasons, are also served by the program.

To be eligible for CPP, a child must be at-risk for several reasons, including poverty as a well as a host of other circumstances. We can assume that the students in CPP who are not in low-income families would perform at least as poorly as the low-income students because of the other risk factors they face. Page two of this brief provides a full list of CPP risk factors. Overall in Colorado, 56 percent of low-income students scored proficient or advanced on the third grade reading CSAP. Holding all other things equal, we assume that within the CPP cohort, if CPP had no effect on performance and students who had been enrolled in CPP passed the test at the same rate as students who were not enrolled in the program, 6,650 low-income CPP students would pass the third grade CSAP four years later and 1,942 CPP students who were more affluent would pass the test.

Table 2: Number of Four-Year Old CPP Participants Likely to Score Proficient or Advanced on the Third Grade CSAP Reading Test Given Various Estimated Effects of CPP

	Number of CPP Students	Zero Effect 56% Passing Rate	10% Effect 66% Passing Rate (Difference from Zero Effect)	20% Effect 76% Passing Rate (Difference from Zero Effect)
FRPL (low income)	**11,875**	**6,650**	**7,838 (1,188)**	**9,025 (2,375)**
Not FRPL (not low income)	**3,467**	**1,942**	**2,288 (346)**	**2,634 (692)**

These numbers likely under estimate the effect because the current 56 percent passing rate for low-income students includes the benefit of CPP within the baseline. If we could identify from previous data, the non-CPP students statewide who were from low-income families, we would likely find that our current expected achievement rate for low-income students who do not participate in CPP is lower than the 56 percent reported now for all low-income students – which includes some effect of CPP. Nevertheless, if CPP is eliminated, the number of children that would score proficient or advanced on the reading CSAP could be estimated by taking the number of extra passing scores created by various effect sizes and subtracting those from the total number of current passing scores by that student group with an estimate of zero effect from CPP. These estimates are presented in Table 3.

Table 3: Number of Children Estimated to Score Proficient or Advanced on Third-Grade Reading CSAP if CPP is Eliminated: Based on Various Estimated Effects Sizes of CPP

	All Students	Students Scoring Proficient and Advanced (CPP and non-CPP)	10% Effect Size	20% Effect Size
FRPL	**24,542**	**13,744**	**12,556**	**11,369**
Non-FRPL	**35,505**	**29,824**	**29,478**	**29,131**

[10] This assumes the mobility in and out of a cohort includes equal proportions of CPP participants from other initial cohorts.

The achievement gap is the difference between student groups (low-income to non-low-income children in this case) in the ratio of the number of children that would score proficient or advanced to the total number of children from that group. For example, among 24,542 FRPL students, we find that 13,744 currently pass the CSAP, for 56 percent passing rate; whereas 29,824 out of 35,505 non-FRPL students pass the CSAP, for an 84 percent passing rate. The difference between 56 percent and 84 percent is 28 percent, which is the current achievement gap between low-income students and their more affluent peers on the third grade reading CSAP.

To estimate the passing rates for each student group and the achievement gaps given various estimated effect sizes for CPP participation, we subtract from the current number of students passing the CSAP from each group, all those whose passing we would attribute to CSAP given the effect size. These passing rates and achievement gaps are reported in Table 4.

Table 4: Estimated Achievement Gaps with Loss of Estimated Effect of CPP Participation for Third Grade Reading CSAP

Estimated Effect of CPP (Lost if CPP Eliminated)	FRPL	Non-FRPL	Achievement Gap (Percent Increase)
No Effect	56 %	84%	28%
10% Effect	51.2%	83%	31.8% (3.8%)
20% Effect	46.3%	82%	35.7% (7.7%)

Implications of Widened Achievement Gap

Eliminating CPP would have long-term ramifications on children as well as the state. A widened achievement gap would suggest that more children would likely experience the negative effects of low performance, including;

- More likely to drop out of high school;
- Earning less money over their lifetime;
- More likely to require public assistance.
- Less likely to attend and graduate from college;
- More likely to live in poverty; and

These factors would create an added fiscal burden that the state would have to address. By cutting CPP, the state would potentially be adding to its fiscal problems, not alleviating them.

Colorado has made some progress on closing the achievement gaps that exist between low-income students and their higher-income peers. Programs such as CPP have proven to be effective in closing those gaps. Despite its benefits, CPP could potentially face substantial cuts. Cutting or eliminating CPP would put kids already at-risk for school failure further at-risk, and potentially cause the state to incur the long-term costs resulting from their low performance. It is imperative that the state maintains the Colorado Preschool Program and protect the investment in our most vulnerable citizens.

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