

# Chapter Three

## Roosevelt-Edison Charter School

### Colorado Springs, Colorado

#### 3.1 Descriptive Summary of School

Roosevelt-Edison Charter School is a district charter school that was established in 1996 to serve grades K-5. In 1997, the same charter was used to open Emerson-Edison Partnership School.<sup>10</sup> The mission of the Roosevelt-Edison Charter School is to prepare its diverse population of students for success in their lives by providing a “world class education” at prevailing public school costs. Enrollments at Roosevelt-Edison have been quite consistent, with 681 students during the 1997-98 school year, 684 in the 1998-99, and 674 in 1999-00. While enrollments have remained steady at Roosevelt, they dropped in the district as a whole. For example, the district enrolled a total of 32,815 students in the 1997-98 school year, but by the 1998-99 school year the enrollments had dropped to 31,586.

The student-to-teacher ratio has also remained relatively stable at Roosevelt with 13.7 students per teacher, increasing only from 12.2 students per teacher during the 1997/1998 school year when there were 56 instructional staff members. In comparison, the Colorado state average for student-to-teacher ratio decreased from 18.5 in the 1996/1997 school year to 18.2 during the 1997/1998 school year. The district reported an 18.3 student-to-teacher ratio during the 1998/1999 school year. Roosevelt-Edison has provided a consistently lower student-to-teacher ratio than both the state and the district. Roosevelt-Edison’s average attendance rate was 94.9 percent in the 1997/1998 school year and decreased slightly during the 1998/1999 school year to 92.9 percent (CDE, 1999, 2000).

In its third annual report, Edison (2000) reported that of the 674 students enrolled during the 1999/00 school year, 28.3 percent were African American, 2.5 percent were Asian/Pacific, 34 percent were Caucasian, and 20.9 percent were Hispanic, and 14.2 percent were categorized as “other” (students in this group are largely Native American Indians). According to the Colorado Charter Schools Evaluation, 51 percent of Roosevelt’s students were white in the 1999/2000 school year, about a 14

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<sup>10</sup> Even though Emerson and Roosevelt are operated under the same charter, we were asked by Edison officials to distinguish the two as separate schools, one at the elementary level and one at the middle school level. The two entities occupy separate facilities and serve students at different levels. In any case, there was only one year of data available for grade 7 students at Emerson, so we could not trace the trends in achievement.

percent increase from the 1997/1998 school year. The population of white students in the state was consistently in the lower 70 percent range between 1995 and 1999. The district school population was 71.2 percent white during the 1999/2000 school year, similar to the state. The state and district school populations have approximately 20 percent fewer minorities than at Roosevelt, which is about 50 percent minority. Also, approximately 7.1 percent of the Roosevelt students were labeled as bilingual or ESL (English as Second Language) during the 1999-00 school year.

The number of students qualifying for free and reduced lunches rose from 54 percent during the 1996/1997 school year (AFT, 1998) to 64.6 percent during the 1999/2000 school year (CDE, 2000). The size of the waiting list decreased from 375 in 1998 to 325 in 1999. As one can see, the list is still quite large. Approximately 25 percent of all families volunteer at the school and logged more than 7,000 hours of work (CDE, 2000).

Special education students represented 9.7 percent of the population during 1999-00 (CDE, 2000). There was a discrepancy in the findings for the percentage of the population receiving special education services during the 1998/1999 school year. According to the 1998 Colorado Charter School Evaluation, 2.3 percent of the student population needed special education services. In its 1997/1998 self-reported school profile, Edison stated that 8.5 percent of its students required special education services.

The average teacher salary at Roosevelt-Edison was \$38,876 during the 1998/1999 school year. The state average was up from \$35,364 during 1995/1996 to \$37,240 during 1997/1998. With an increase of about \$1,000 each school year, we can speculate that during the 1998/1999 school year the average teacher salary in Colorado was around \$38,240, still slightly lower than Roosevelt.

In terms of accountability, Roosevelt-Edison administers two norm-referenced tests: the Iowa Test of Basic Skills (ITBS) and the Comprehensive Test of Basic Skills (CTBS). The school is also required to take part in the district criterion-referenced test: District Achievement Levels Test (DALT). Finally, in terms of performance assessments, the school reports that it uses individual learning programs and student portfolios (CDE, 2000).

## 3.2 Past Studies and Evaluations

According to the two most recent state charter school evaluations (CDE, 1999, 2000) Roosevelt School provided data for both the 1997/98 and the 1998/99 school years that “generally indicated that they were meeting expectations defined for their performance.” During the 1998/99 school year, 33 percent of the charter schools exceeded expectations, and the Edison school was joined by another 25 charter schools (51 percent of all charter schools in the state) in “generally meeting expectations.” Another 16 percent of the charter schools did not provide sufficient information to indicate if they were meeting expectations (CDE, 2000, p. xvi-xvii).

Mislevy (1998) researched the area of the *Success for All* reading program that Edison implements in its schools. Roosevelt was compared with a control school from the local district in grades K-2.

Students were matched by grade, gender, and participation in free- or reduced-lunch programs, to see how *Success for All* affected reading achievement. Both groups took pretests and in every grade, the control school outscored Roosevelt in the second year. The analyses of 1997/1998 were done with checks on attrition, comparison of pretest and 1997/1998 posttest scores, comparison of effect sizes across years, comparison of cohorts across years, and change over years. In turn, the “posttest differences cannot be interpreted as estimates of program effects,” although a matched control was attempted. Unfortunately, both groups began from starkly different beginnings in reading achievement which weaken the argument that differences in results could be attributed to the program.

Although the differences in the pretests “precluded interpreting posttest differences as program effects, a pattern did emerge”(Mislevy 1998). There is the possible indication that the program is having positive effects when we see that, although the pretests revealed vast differences among the groups, there was a pattern of decreasing posttest differences among the younger cohorts for the 1997/1998 school year. However, even with adjustments to compensate for the initial differences, there was still a small difference favoring the control school for second graders; there were mixed differences for first graders, meaning neither school was favored; and there was a small difference that favored Roosevelt kindergartners. But even after statistical adjustments were made, there was little difference among the groups (Mislevy 1998).

The Colorado Springs District 11 administers a set of tests to measure student performance and growth in basic skills. The District Achievement Levels Tests (DALT) are series of tests in reading, language, and math that are constructed to align with the district’s curriculum. These tests are administered at the beginning and end of each school year. The DALT’s validity is enhanced by the use of Rasch scaling, which is a statistical method that employs test items representing narrow bands of increasing difficulty. Progress is monitored through the use of growth scores referred to as Rasch units or, more simply, RIT scores. The district reported results for Roosevelt-Edison in order to compare gains made at grades 3, 4, and 5 with district gains. Generally, Roosevelt-Edison is consistently below the district levels, but the gains made by Roosevelt-Edison on the DALT largely parallel the gains made by the district (i.e., the charter school is not gaining more than the district over time).

### 3.3 Longitudinal Analysis of Individual Student Data

Edison Schools Inc. provided individual student test results only for the Iowa Test of Basic Skills (ITBS). ITBS scores were provided in three separate scales: stanine scores (Stn), national percentile rank scores (PR), and normal curve equivalent scores (NCE). Unlike the other data sets we received, there were no data for grade equivalent scores. Parallel analyses are reported for each of the three scales for which we received data.

Data indicated that Roosevelt-Edison had 498 students during the 1997-98 and 1998-99 school years. The ITBS tests were administered during the spring of each year. We were able to trace 2 cohorts representing a small portion of the students: between 64 and 68 students in Cohort A, depending on

the subject test, and 71 students in Cohort B for all 3 subject tests. For example, ITBS language stanine scores from 1998 show that there were 106 possible third graders to follow; by 1999, 63 percent remained (71/106 pair-wise analysis). This represents a 37 percent drop in students in the Cohort A that progressed from grade 3 to grade 4. In Cohort B 109 students began in grade 4 and 71 were available in grade 5, or about 65 percent. Table 3:1 presents sample size information for each ITBS score scale for each subtest by year and cohort. Also depicted in this table are the sample sizes for the one-year gain analysis.

Table 3:1 Table of Sample Sizes for Individual Student Data on the ITBS by Grade and Year

		<b>Grade 3</b>		<b>Grade 4</b>		<b>Grade 5</b>	
		1998	1999	1998	1999	1998	1999
<b>Stanine Score</b>							
	Language	106	105	109	115	85	112
	Math	105	106	106	112	87	111
	Reading	108	105	108	113	84	111
<b>National Percentile Rank (PR)</b>							
	Language	106	105	109	115	85	112
	Math	105	106	106	112	87	111
	Reading	108	105	108	113	84	111
<b>Normal Curve Equivalent (NCE)</b>							
	Language	106	105	109	115	85	112
	Math	105	106	106	112	87	111
	Reading	108	105	108	113	84	111
		<b>Cohort A (3<sup>rd</sup> to 4<sup>th</sup> grade)</b>			<b>Cohort B (4<sup>th</sup> to 5<sup>th</sup> grade)</b>		
	Stanine	PR	NCE	Stanine	PR	NCE	
Language	67	67	67	71	71	71	
Math	64	64	64	71	71	71	
Reading	68	68	68	71	71	71	

### Longitudinal analysis findings

Dependent t-tests were examined for detecting a one-year change (gain) in the two cohorts between 1998 and 1999 in the Roosevelt-Edison charter school. Outcome data were individual student data on the Iowa Test of Basic Skills language, mathematics, and reading subtests. Parallel analyses are reported for all types of scores reported by Edison, e.g., stanine score, percentile rank, and the normal curve equivalent (NCE) score. The tables and charts in Exhibits 3:1 and 3:2 illustrate the results in terms of stanine scores, percentile ranks, and normal curve equivalents (NCEs). The results are grouped by subject area tests: language, math, and reading.

## Exhibit 3:1 Cohort A at Roosevelt-Edison Charter School: Results From the Iowa Test of Basic Skills

### COHORT A

#### LANGUAGE

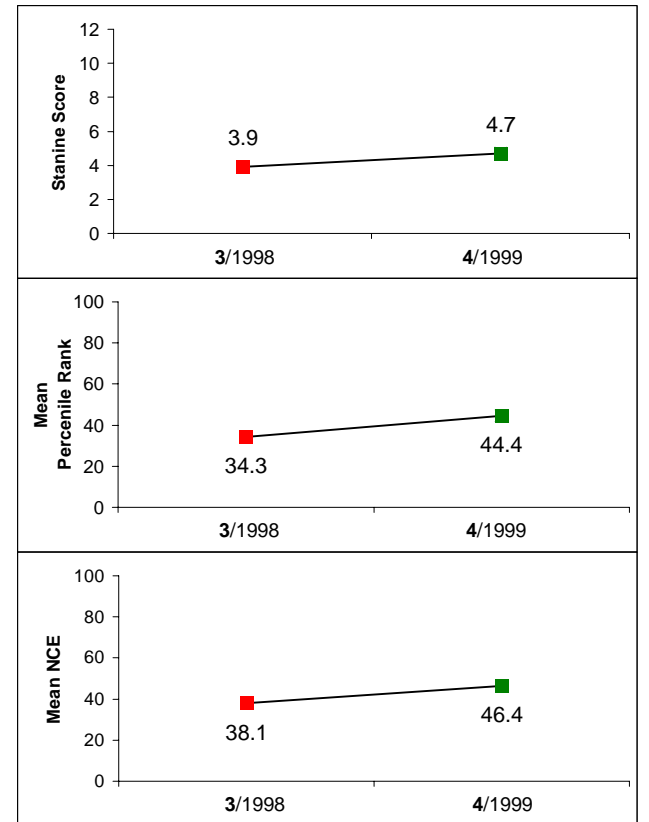
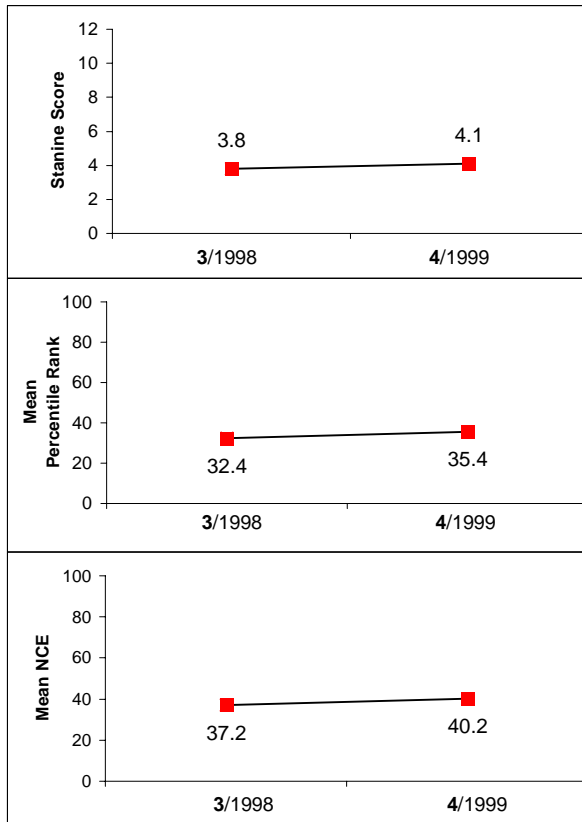
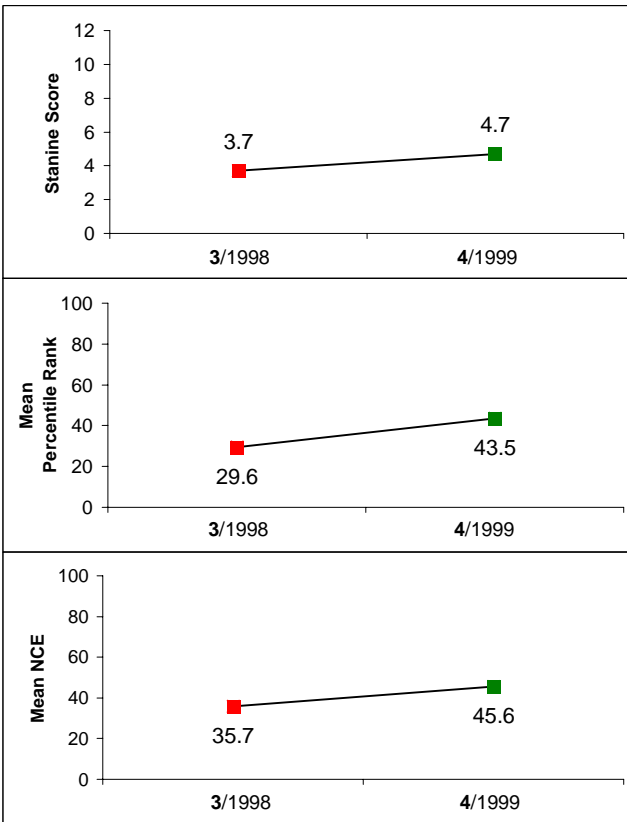
n=67	1998	1999		
Grade	3th	4th	(Gain)	
Stn Language	3.7	4.7	0.985	t(66)=8.2539, p<.0001
NP Language	29.6	43.5	13.92	t(66)=7.5911, p<.0001
NCE Language	35.7	45.6	9.94	t(67)=7.8872, p<.0001

#### MATH

n=64	1998	1999		
Grade	3th	4th	(Gain)	
Stn Math	3.8	4.1	0.234	t(63)=1.4921, p=.1407
NP Math	32.4	35.4	3.02	t(63)=1.4568, p=.1501
NCE Math	37.2	40.2	3.03	t(63)=1.8512, p=.0688

#### READING

n=68	1998	1999		
Grade	3th	4th	(Gain)	
Stn Reading	3.9	4.7	0.794	t(67)=5.6153, p<.0001
NP Reading	34.3	44.4	10.07	t(67)=5.3388, p<.0001
NCE Reading	38.1	46.4	8.32	t(67)=5.5254, p<.0001



A color change represents a statistically significant change in the means. A trend with two color changes represents differences among all three means. A dual colored charting point (red and green) represents a statistically significant difference between one mean but not the other. The reader is encouraged to examine the individual table of means for these cases.

## Exhibit 3:2 Cohort B at Roosevelt-Edison Charter School: Results From the Iowa Test of Basic Skills

### COHORT B

#### LANGUAGE

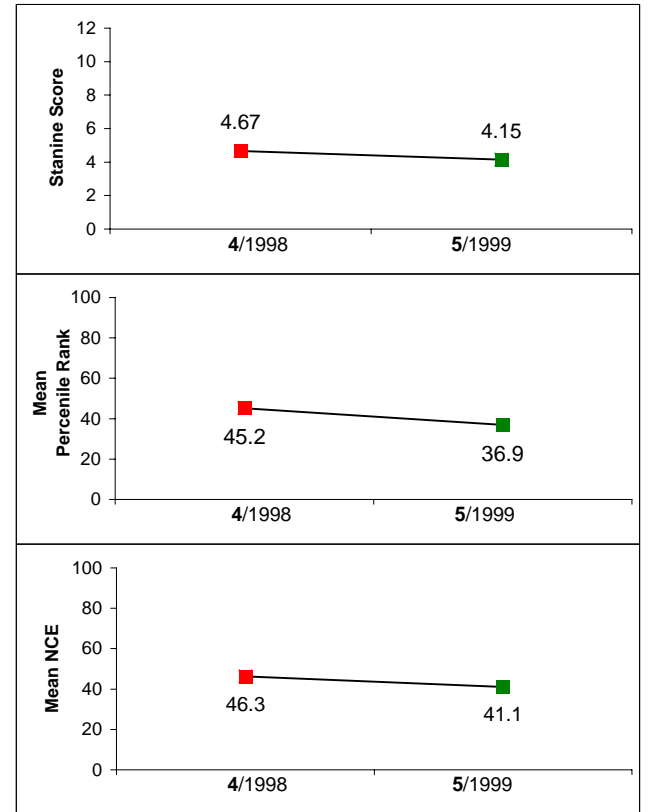
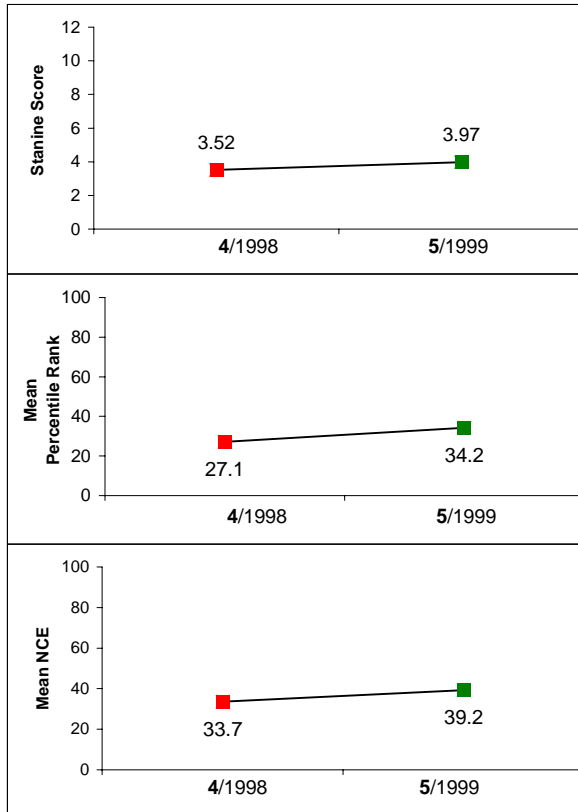
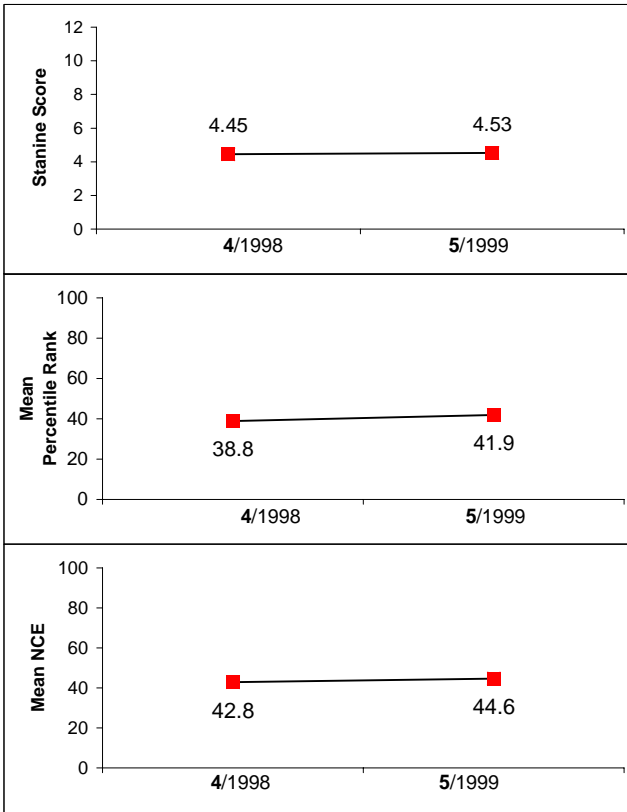
	1998	1999	
n=71			
Grade	4th	5th	(Gain)
Stn Language	4.45	4.53	0.084 t(70)=0.6298, p=.5309
NP Language	38.8	41.9	3.07 t(70)=1.6108, p=.1117
NCE Language	42.8	44.6	1.74 t(70)=1.2492, p=.2157

#### MATH

	1998	1999	
n=71			
Grade	4th	5th	(Gain)
Stn Math	3.52	3.97	0.450 t(70)=3.3952, p=.0011
NP Math	27.1	34.2	7.15 t(63)=3.5987, p=.0006
NCE Math	33.7	39.2	5.56 t(70)=4.0135, p<.0001

#### READING

	1998	1999	
n=71			
Grade	4th	5th	(Gain)
Stn Reading	4.67	4.15	-0.52 t(70)= -3.022, p=.0035
NP Reading	45.2	36.9	-8.33 t(70)= -3.653, p=.0005
NCE Reading	46.3	41.1	-5.27 t(70)= -2.929, p=.0046



A color change represents a statistically significant change in the means. A trend with two color changes represents differences among all three means. A dual colored charting point (red and green) represents a statistically significant difference between one mean but not the other. The reader is encouraged to examine the individual table of means for these cases.

In terms of stanine scores, national percentile ranks, and NCEs on the ITBS, Cohort A students showed statistically significant increases in language and reading but not in mathematics. Because these gains were statistically significant and the scales are relative to the ITBS national norms, one can be certain that these students are moving ahead and are in fact progressing faster than the national norms except in mathematics. Between the 1997-98 and 1998-99 school years, the students in Cohort A increased their performance on the language subtest by 10 NCEs, and on the reading subtest they increased by 8.3 NCEs. The students also increased by 3 NCEs on math, but this gain was not statistically significant.

The performance by students in Cohort B was nearly the opposite, with the students performing well in math, but equal to or less than the national norm in language and reading. The students moved from an NCE of 33.7 in the 1997-98 school year up to 39.2 NCEs in the 1998-99 school year. The students in this cohort gained 1.7 NCEs in language, which indicates no significant change over the two years. In reading, however, the students in Cohort B performed very poorly and dropped from an NCE of 46.3 in the 1997-98 school year to 41.1 NCEs in the 1998-99 school year. This decrease was statistically significant.

On the whole, we can see that the students at Roosevelt-Edison Charter School are below the national norm and in the areas where they had a higher ranking in 1997-98, they were more likely to make small gains or actually lose ground on the national norms. In the areas where they had a lower starting point in 1997-98, the students were more likely to make larger and statistically significant gains.

### 3.4 Chi-Square Analysis of CSAP Data

#### Available data

One of the main sources of student data was the Colorado Student Assessment Program (CSAP). We were able to secure test results for the Roosevelt School, the local district, and the state from the Colorado Department of Education. Because the CSAP is a relatively new state assessment program and because it is still not fully implemented in terms of grades and subject tests, we were not able to collect data for all years that the Edison charter school was in operation. We were able to obtain grade 3 reading results for two years, grade 4 reading and writing results for three years, and grade 5 math results for one year (1999-00).

A chi-square analysis was initiated on data made available by the Colorado Department of Education on the outcomes of the Colorado Student Assessment Program (CSAP), the state mandated criterion-referenced test. The CSAP is administered in grade 3 (reading), grade 4 (reading and writing), and grade 5 (mathematics, first results were available in March 2000). For all tests across the grades and subject areas, a similar four-category ordinal scale is used to report results: Unsatisfactory, Partially Proficient, Proficient, and Advanced.

## Construction of the comparison groups

We constructed two different comparison groups for the Roosevelt-Edison chi-square analyses (see Table 3:2). Since we were interested in examining the number/proportion of students who meet state standards (“passing”) or, conversely, the number/proportion of students who do not meet state standards (“failing”) on the CSAP, we needed to define a suitable comparison group. Our first comparison was with the local district (Colorado Springs, District 11), and the second comparison group we selected was the state of Colorado. While the state demographics vary between Roosevelt-Edison and the district and state, we believe that comparisons with district and state performance levels, particularly since we focus on gains, can yield further information regarding the relative performance levels at the Edison school. Also, since Edison claims that advances in other district schools is—in part—due to its presence, we use the state as a more distant point of comparison that cannot be easily influenced by the presence of Edison’s schools.

### General procedure

Utilizing published data from the Colorado Department of Education, we were able to make yearly comparisons (consecutive cohorts) for grade 3 from 1998 to 1999, in grade 4 for 1997 through 1999, and for grades 5 and 7 for only one year, 1999.

Percentage data (students in each scoring category) were converted to raw frequency data prior to chi-square analysis. To insure independence of the rows in the chi-square tables, the raw frequencies for each scoring category of the CSAP in the district and state comparisons were down-weighted by subtracting the number of students in that category from Roosevelt-Edison. Thus, the district and state numbers reflect all students exclusive of those in Roosevelt-Edison.

Four chi-square analyses were evaluated for each subtest nested within year and grade level. Two of these analyses were on uncollapsed data, that is, all scoring levels were represented in the contingency table (e.g., a 2x4) for the district and state comparisons. Two follow-up analyses were conducted on the data after collapsing the multilevel scoring into a dichotomy (pass, fail), thus producing 2x2 contingency tables. According to the Colorado Department of Education, a score in

Table 3:2 Summary of Chi-Square Findings for Roosevelt-Edison Charter School

	1997	1998	1999
<b>3<sup>rd</sup> Grade Reading</b>			
Roosevelt vs. District	NA	sig/sig	sig/sig
Roosevelt vs. State	NA	sig/sig	sig/sig
<b>4<sup>th</sup> Grade Reading</b>			
Roosevelt vs. District	NA	sig/sig	sig/sig
Roosevelt vs. State	sig/sig	sig/sig	sig/sig
<b>4<sup>th</sup> Grade Writing</b>			
Roosevelt vs. District	NA	sig/sig	sig/ns
Roosevelt vs. State	sig/sig	sig/sig	sig/sig
<b>5<sup>th</sup> Grade Math</b>			
Roosevelt vs. District	NA	NA	sig/sig
Roosevelt vs. State	NA	NA	sig/sig

Note: Each result cell in the matrix is divided with the results for the 2x4 analysis on the left-hand side, and the results for 2x2 analysis on the right-hand side (i.e., 2x4/2x2). Red color indicates a statistically significant difference that favors the comparison group; blue color indicates a significant difference that favors the Edison school.

the “proficient” and “advanced” categories constitutes “passing” or meeting the state standard for that particular grade and subject. On the other hand, the “unsatisfactory” and “partially proficient” categories refer to scores that have not met state standards and fall into the “fail” category in our 2x2 chi-square and odds-ratio analyses.

### Chi-square findings

Results of the chi-square analyses for grade 3 covered the CSAP administration years for 1998 and 1999 for reading. Individual contingency tables are presented in Appendix E. Eight analyses, (four 2x4 for 1998 results) and four 2x2 for 1999 results) were examined, four each for the district and state comparisons.

The results of these chi-square analyses for grade 3 evidence a reversal between 1998 and 1999 (see Table 3:2). In 1998 Roosevelt-Edison students showed a higher proportion (statistically significant) of students scoring in the lower categories relative to students in the district or state. However, in 1999 this pattern flipped; there were a higher proportion of students from Roosevelt-Edison were at the proficient and advanced scoring levels.

In grade 4 two CSAP tests are administered: reading and writing. We were able to make district and state comparisons for 1998 and 1999 and state comparisons for 1997. The results were consistent across test, comparison group, and type of analyses (see Table 3:2). All chi-square analyses except one were statistically significant, with lower proportions of Roosevelt students achieving at the proficient and advanced levels. The exception to this general pattern was in the 2x2 district comparison for 1999. Roosevelt students performed at comparable levels relative to district students on the grade 4 writing test. Fifth grade CSAP mathematics data were only available for 1999. Higher proportions of Roosevelt students scored in the lower two categories than either the district or the state.

## 3.5 Odds Ratio Analysis of the CSAP Data

One of the many possible statistics that can be derived from a 2x2 contingency table is the odds ratio statistic and corresponding  $1-\alpha$  confidence interval. As presented in Section 2.4 of this report, the 2x2 tables analyzed in the previous section can be thought of as representing consecutive class cohorts in a prospective design. From a classical epidemiological perspective, the students in the Edison school can be thought of as the “exposed” group, that is, exposed to the “Edison-effect,” and students in the comparison group as the unexposed group. From this perspective each yearly comparison is a “new” cohort; and measured over a period of years, there are consecutive class cohorts. There is a minimal possibility for cohort contamination if a number of students in one group are not promoted to the next grade level. However, we think this represents a very small number of possible cases and therefore has minimal impact on the validity of these analyses.

Section 2.4 details the OR statistic and corresponding  $1-\alpha$  confidence interval. We have calculated and charted OR for each of the 2x2 tables constructed from the chi-square analyses presented above. Exhibit 3:3 presents these findings.

## Odds ratio findings

Consistent with state interpretations of passing score on CSAP, we grouped the scoring categories “proficient” and “advanced” as representing “passing” and scoring categories “partially proficient” and “unsatisfactory” as representing “fail” for our odds ratio analyses. We calculated and charted OR for each of the 2x2 tables constructed from the chi-square analyses presented above. Exhibit 3:3 and Tables 3:3 and 3:4 present these findings. In grade 5 only one year of data could be obtained for these comparisons; thus, a trend could not be estimated. For this reason we have not graphed the odds ratio analysis for grade 5.

As seen in Table 3:3, grade 3 students in Roosevelt-Edison significantly improved relative to the district, showing a statistically significant decrease in OR from 1998 to 1999 (note that the Breslow-Day statistic was significant). The OR in 1998 dropped from 2.344 to 0.591 in 1999. This is a dramatic improvement for Roosevelt-Edison students relative to students in the rest of the district. However, there was only a marginal improvement in OR relative to students in the state comparison that did not reach statistical significance. The Breslow-Day statistic was not significant, indicating that a common OR for the two-year period can be calculated (see Table 3:3). Students from Roosevelt-Edison were more than two times as likely to fail the 3<sup>rd</sup> grade CSAP reading test as were students in the state.

Exhibits 3:4 to 3:7 illustrate performance levels for Roosevelt, the district, and the state. These exhibits also include the 1999-00 data that were not considered in the odds ratio analysis.

Table 3:3 Summary of Grade 3 CSAP Odds Ratio Findings for Roosevelt-Edison

	OR	95% CI
	Common OR	
<i>Odds of not meeting standard compared with district</i>		
1998	2.344	1.617 - 3.397
1999	0.591	0.402 - 0.870
<i>Odds of not meeting standard compared with state</i>		
1998 - 1999	2.344	1.180 - 3.035

Table 3:4 Summary of Grade 4 CSAP Odds Ratio Findings for Roosevelt-Edison

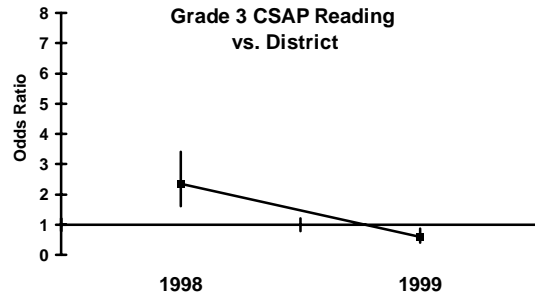
	OR	95% CI
	Common OR	
<i>Odds of not meeting standard compared with district</i>		
1998-99 Reading	3.014	2.305 - 3.942
1998 Writing	2.641	1.657 - 4.209
1999 Writing	0.972	0.587 - 1.612
<i>Odds of not meeting standard compared with state</i>		
1997 - 1999 Reading	2.414	1.940 - 3.003
1997 - 1999 Writing	2.044	1.546 - 2.701

### Exhibit 3:3 Odds Ratio Results for Roosevelt-Edison Charter School (Two and Three Year Trends)

#### Grade 3 CSAP Reading Comparison to District

Year	U CI	L CI	OR
1998	3.397	1.617	2.344
1999	0.870	0.402	0.591

Breslow-Day for Homogeneity of Odds Ratio  
Chi-Sq (1, N=5,080) = 25.381, p < .001

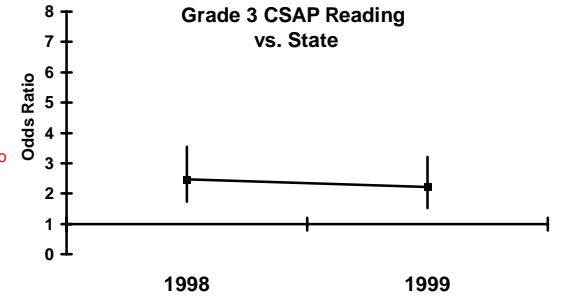


#### Grade 3 CSAP Reading Comparison to State

Year	U CI	L CI	OR
1998	3.543	1.725	2.472
1999	3.211	1.528	2.215

Breslow-Day for Homogeneity of Odds Ratio  
Chi-Sq (1, N=103,713) = 0.163, p = .686

OR = 2.344  
LB = 1.810  
UB = 3.035

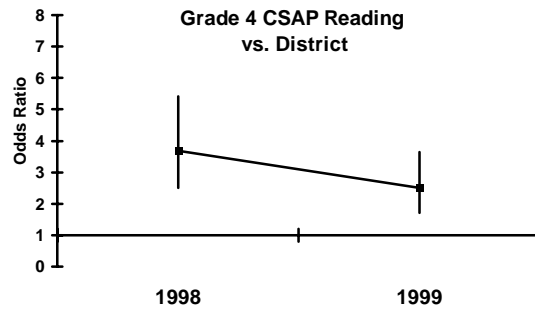


#### Grade 4 CSAP Reading Comparison to District

Year	U CI	L CI	OR
1998	5.412	2.503	3.680
1999	3.639	1.715	2.498

Breslow-Day for Homogeneity of Odds Ratio  
Chi-Sq (1, N=5,090) = 1.819, p = .177

OR = 3.014  
LB = 2.305  
UB = 3.942

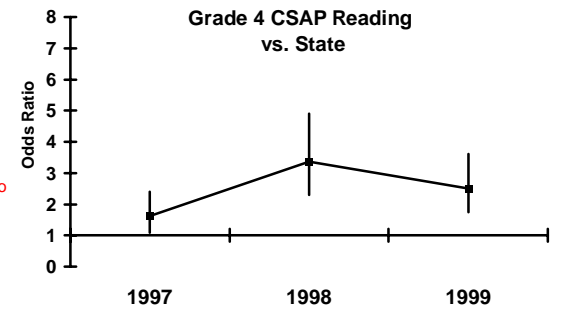


#### Grade 4 CSAP Reading Comparison to State

Year	U CI	L CI	OR
1997	2.408	1.079	1.612
1998	4.907	2.303	3.362
1999	3.610	1.735	2.503

Breslow-Day for Homogeneity of Odds Ratio  
Chi-Sq (2, N=148,638) = 6.539, p = .038

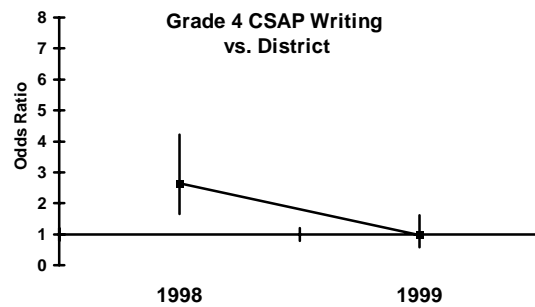
OR = 2.414  
LB = 1.940  
UB = 3.003



#### Grade 4 CSAP Writing Comparison to District

Year	U CI	L CI	OR
1998	4.209	1.657	2.641
1999	1.612	0.587	0.972

Breslow-Day for Homogeneity of Odds Ratio  
Chi-Sq (1, N=4,608) = 8.097, p = .004



#### Grade 4 CSAP Writing Comparison to State

Year	U CI	L CI	OR
1997	3.296	1.201	1.989
1998	3.905	1.556	2.465
1999	2.735	1.027	1.676

Breslow-Day for Homogeneity of Odds Ratio  
Chi-Sq (2, N=148,864) = 1.227, p = .541

OR = 2.044  
LB = 1.546  
UB = 2.701

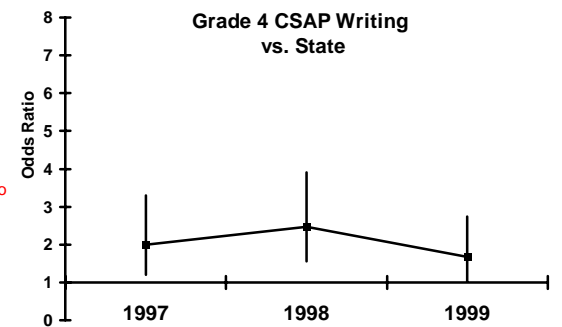


Exhibit 3:4 Performance on Grade 3 Reading for Roosevelt-Edison, District, and State

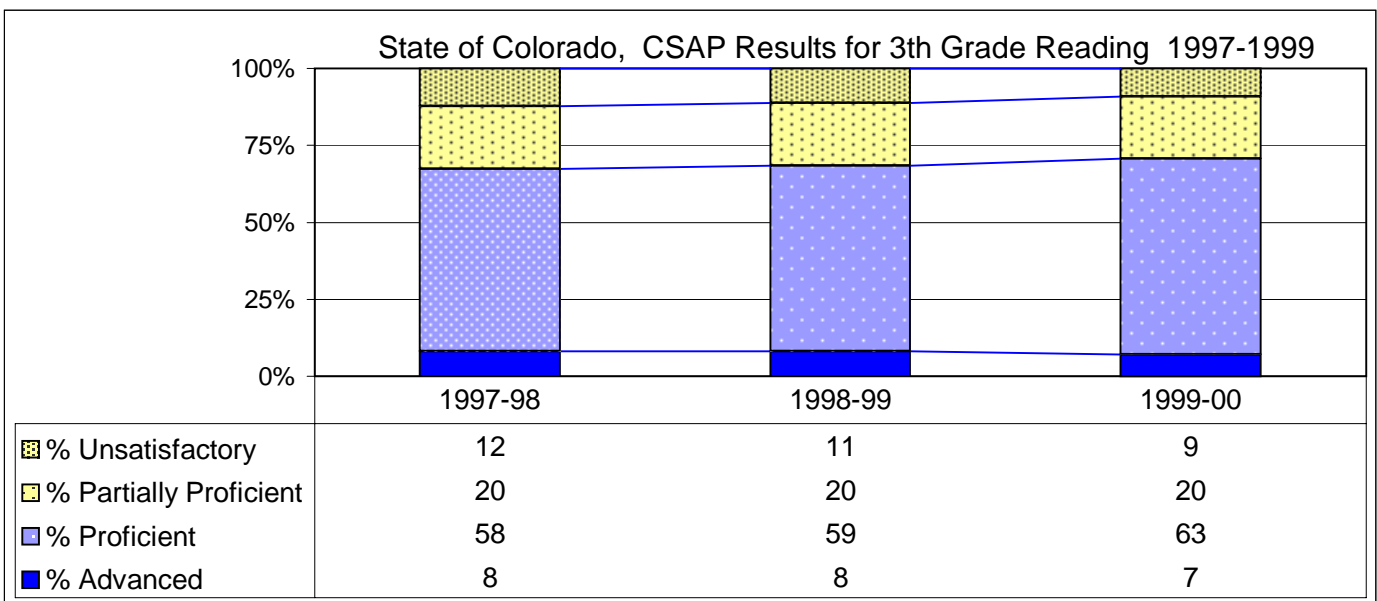
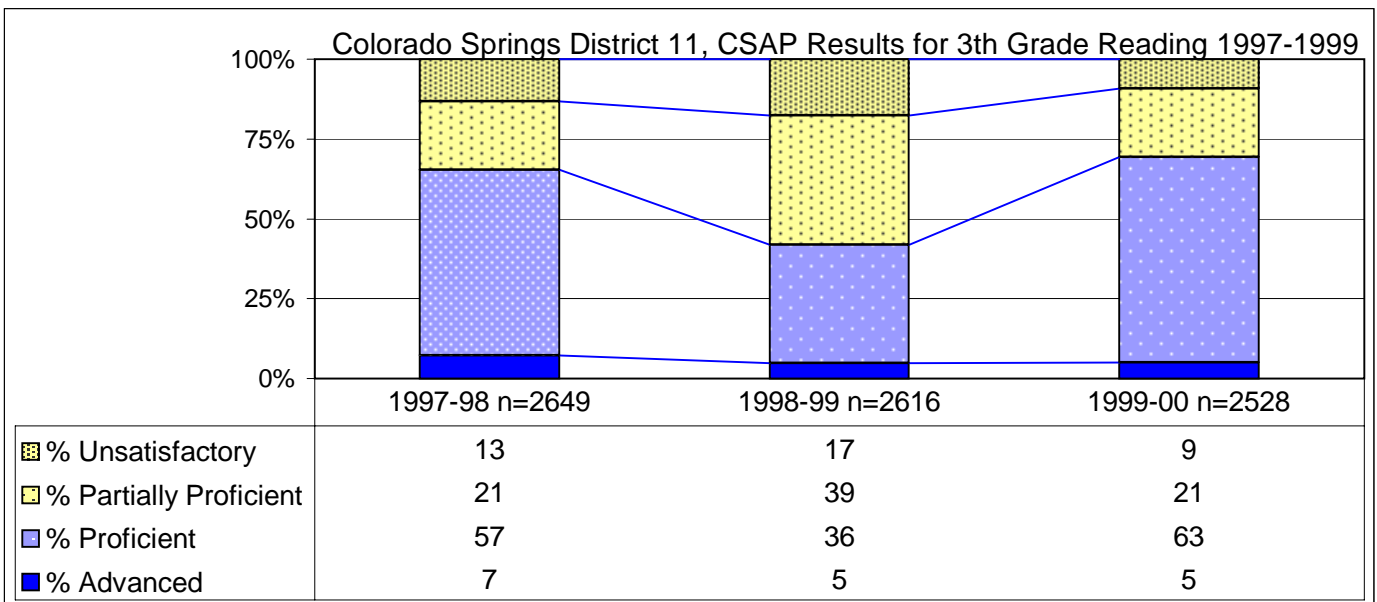
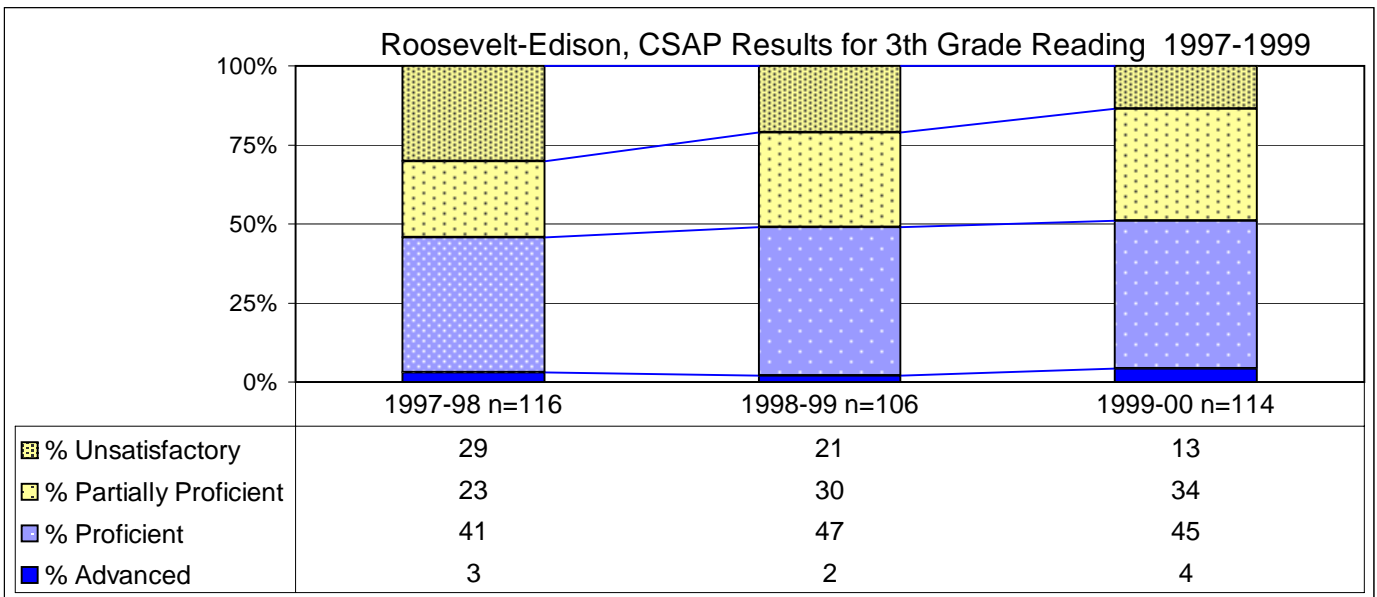


Exhibit 3:5 Performance on Grade 4 Reading for Roosevelt-Edison, District, and State

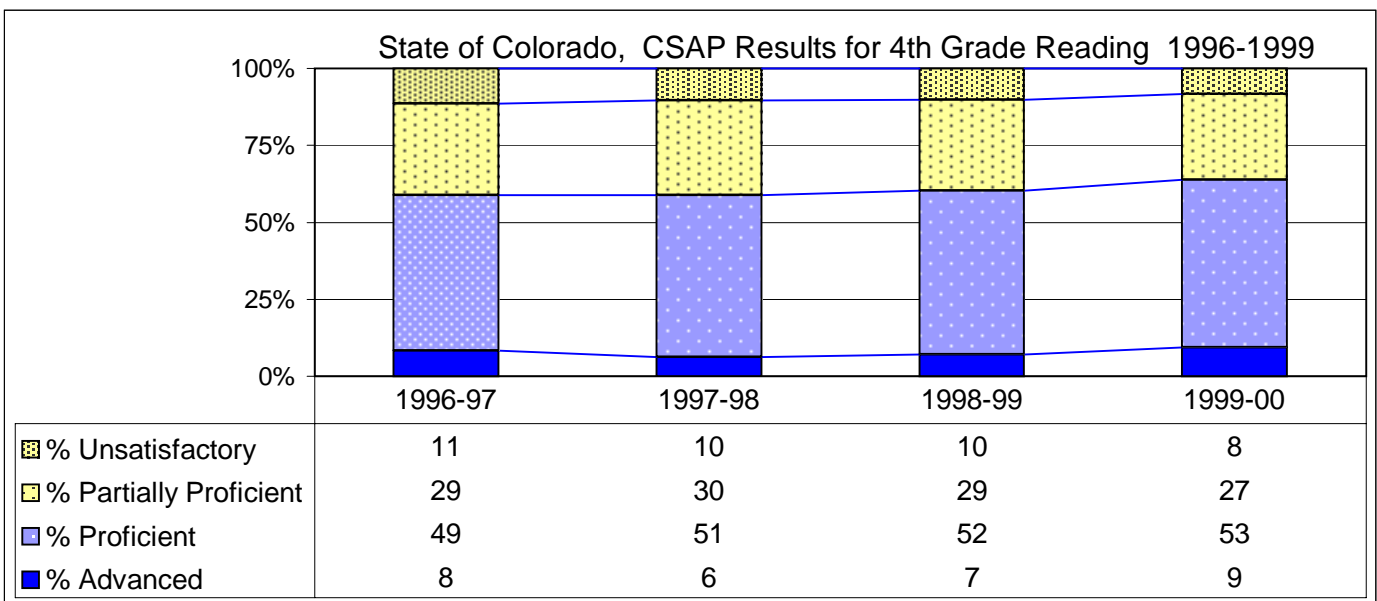
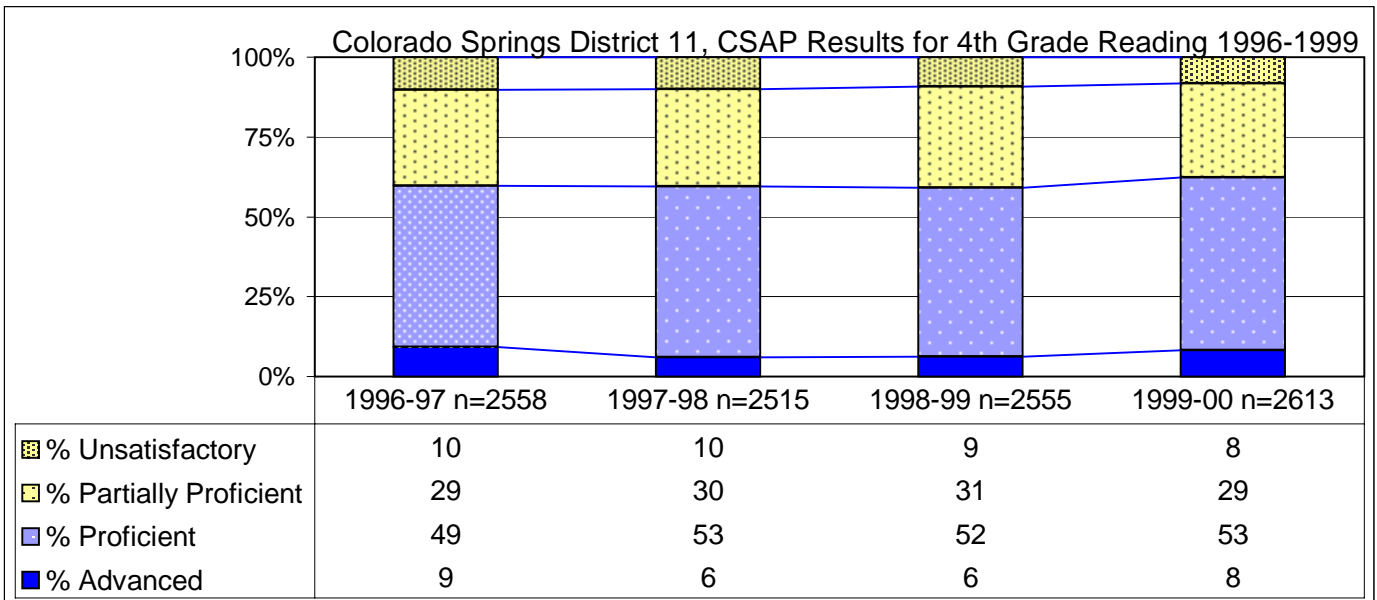
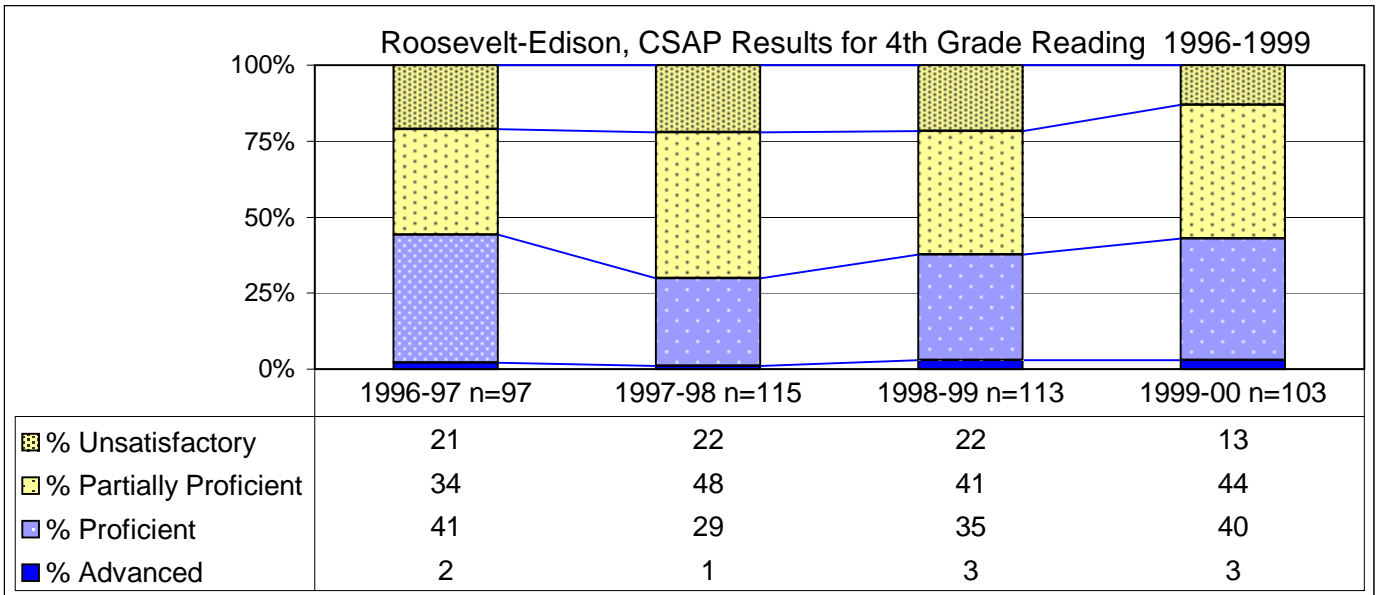


Exhibit 3:6 Performance on Grade 4 Writing for Roosevelt-Edison, District, and State

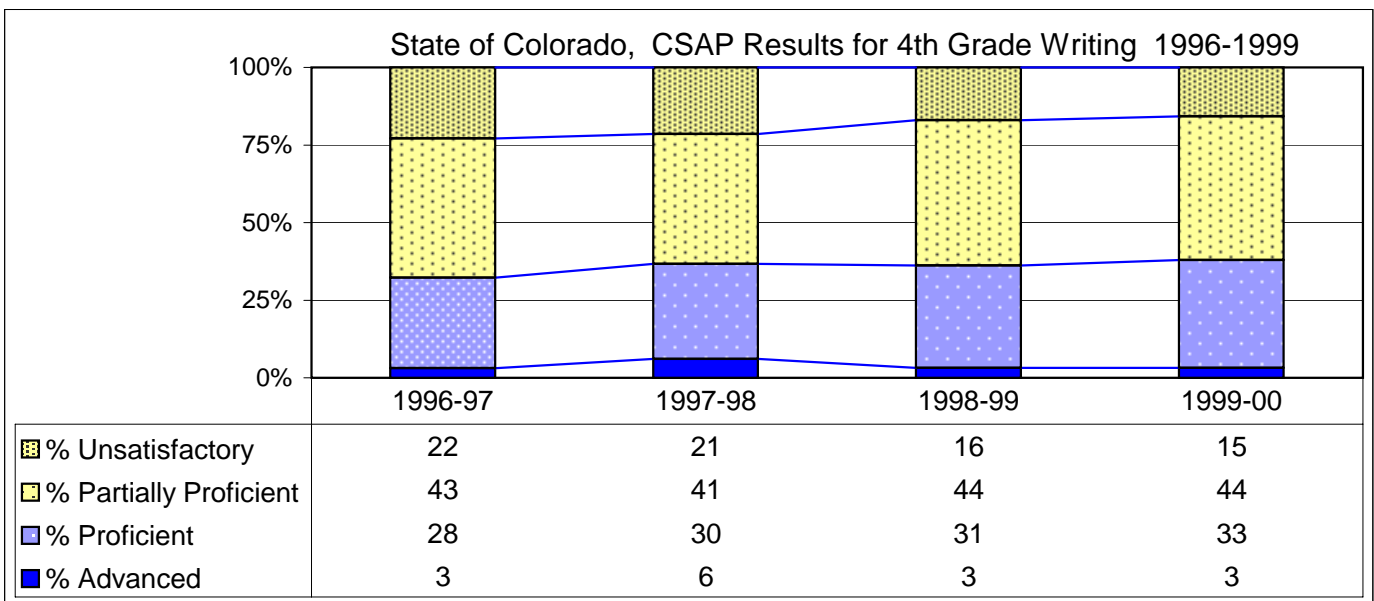
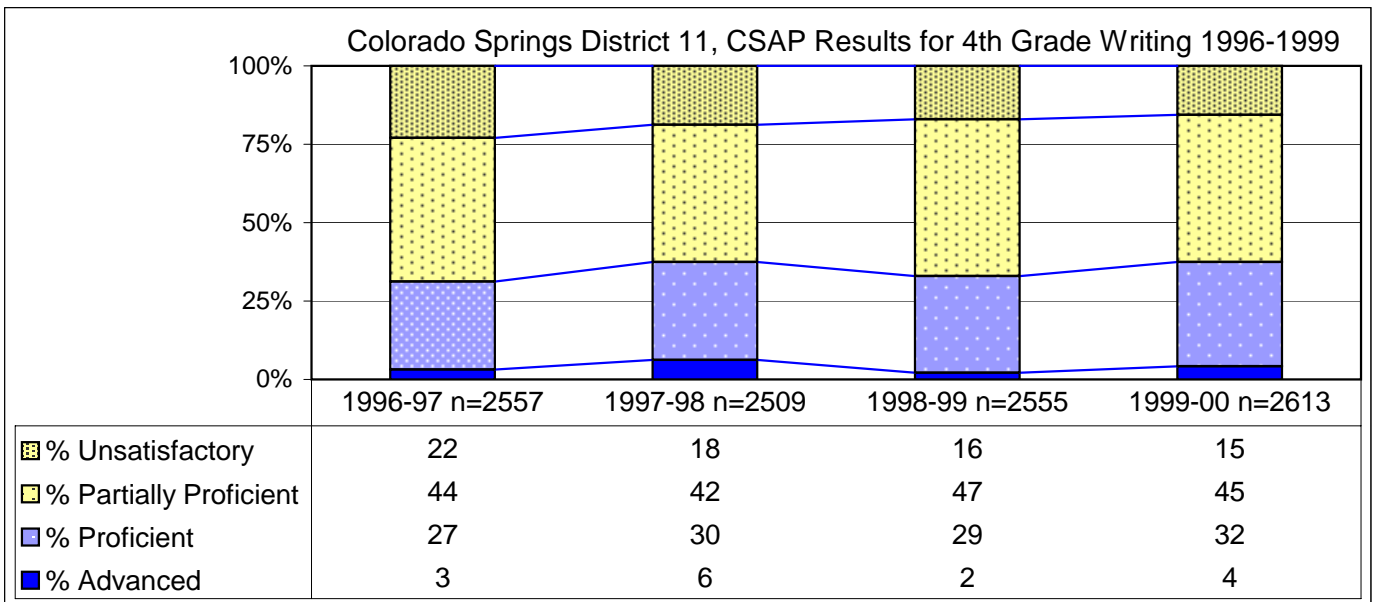
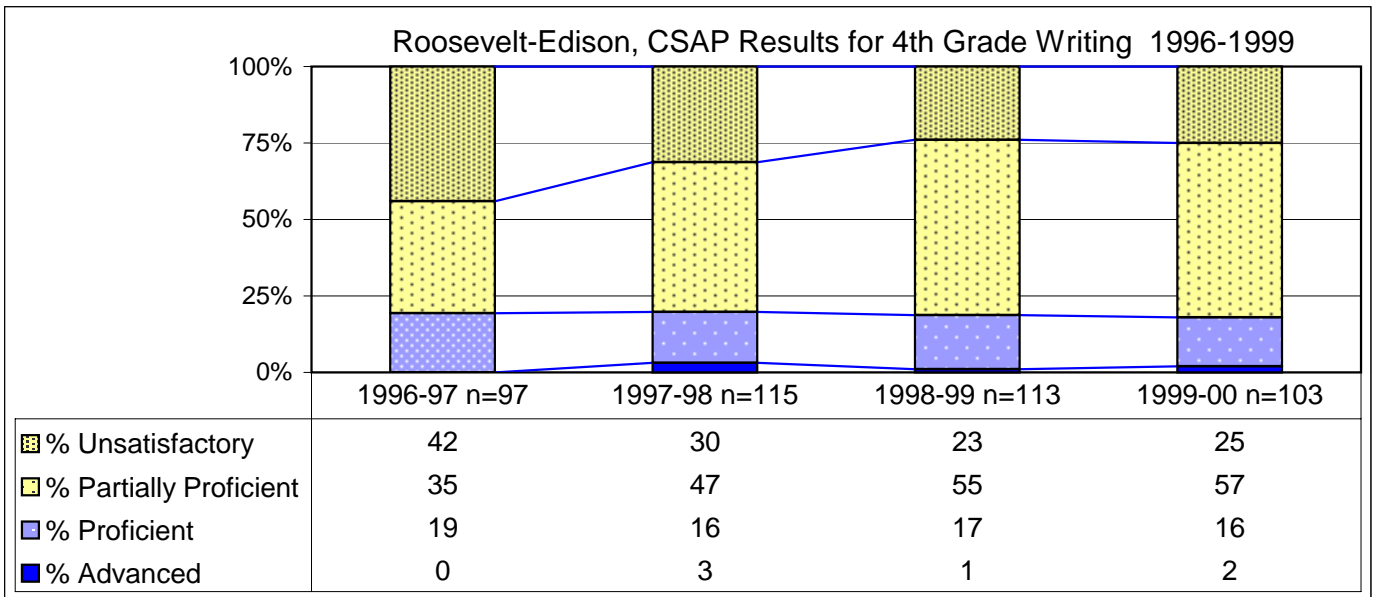


Exhibit 3:7 Performance on Grade 5 Math for Roosevelt-Edison, District, and State

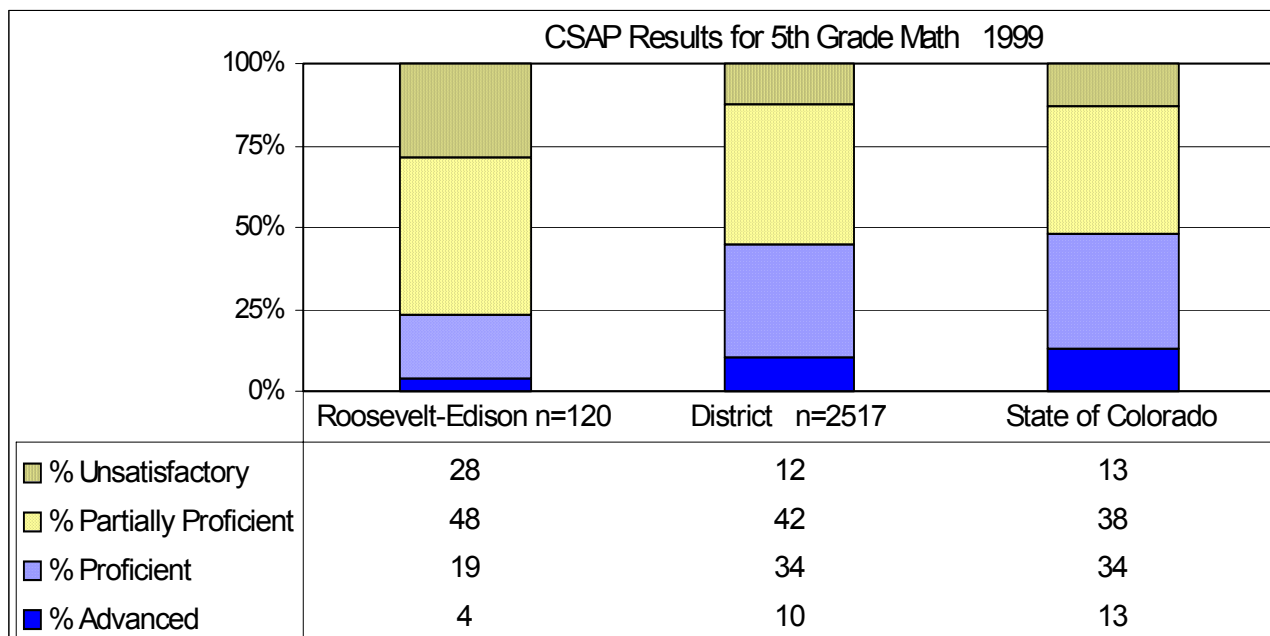


Table 3:4 presents the OR summary data from the fourth grade analyses. Breslow-Day analysis indicated that a common OR for the reading test was meaningful. Students at Roosevelt-Edison were about three times more likely to fail this test relative to students in the district and about twice as likely to fail relative to students in the state. The fourth grade CSAP also includes a writing test. Roosevelt-Edison students showed a statistically significant improvement in performance on this test over the two-year period relative to district students. As can be seen from Table 3:4, the OR dropped from 2.641 to 0.972. Roosevelt students improved from being about 2.5 times more likely to fail to even odds relative to district students. Performance relative to the state did not show this dramatic improvement. A common OR still indicated that Roosevelt-Edison students were about twice as likely to fail the CSAP writing test in the fourth grade.

Only one year of data was available for the fifth and seventh grade CSAP test. Table 3:5 presents the summary findings for the OR analyses. In both analyses students at Roosevelt-Edison performed at levels significantly below students in the district or the state. Individual ORs ranged from a low of about 2.7 to 3.0, suggesting that students at Roosevelt-Edison were much more likely to fail the CSAP mathematics test in the fifth grade than were fifth graders in the district and state.

Table 3:5 Summary of Grade 5 CSAP Odds Ratio Findings for Roosevelt-Edison (1999)

	OR	95% CI
<i>Odds of not meeting standard compared with district</i>		
5 <sup>th</sup> Grade Mathematics	2.769	1.768 - 4.058
<i>Odds of not meeting standard compared with state</i>		
5 <sup>th</sup> Grade Mathematics	3.029	2.025 - 4.531

### 3.6 Summary

While the students, on the whole, made gains on the norm-referenced test (i.e., the Iowa Test of Basic Skills), they did not gain as much, on the whole, as the district and state on the criterion-referenced test mandated by the state (i.e., Colorado Student Assessment Program).

#### Norm-referenced test findings

A summary score of -1 indicates an unfavorable result for the Edison school, a score of 0 indicates a neutral finding, and a score of 1 indicates a favorable result according to the criteria specified in Section 2.5. The effect size (ES) is the omega squared ( $\omega^2$ ) for a one way repeated measures ANOVA (Kepple, 1991). Table 3:6 contains our trend ratings and the basis for these ratings for the norm-referenced achievement tests.

Table 3:6 Summary of Results on Norm-Referenced Student Achievement Tests

Cohort A ITBS Grades 3, 4 (1998-99)	Stanine		NPR			NCE			Trend
	p-value	ES	p-value	$\Delta$	ES	p-value	$\Delta$	ES	
Language	<.0001	.332	<.0001	13.9	.297	<.0001	<b>9.9 (+1)</b>	.314	positive (+1)
Math	.1407	.010	.1501	3.0	.009	.0688	<b>3.0 (0)</b>	.019	mixed (0)
Reading	<.0001	.183	<.0001	10.1	.168	<.0001	<b>8.3 (+1)</b>	.178	positive(+1)
Cohort B ITBS Grades 4, 5 (1998-99)	Stanine		NPR			NCE			Trend
	p-value	ES	p-value	$\Delta$	ES	p-value	$\Delta$	ES	
Language	.5309	-.004	.1117	3.1	.011	.2157	<b>1.7 (0)</b>	.004	mixed (0)
Math	.0011	.069	.0006	7.2	.078	<.0001	<b>5.6 (0)</b>	.096	mixed (0)
Reading	.0035	.054	.0005	-8.3	.080	.0046	<b>-5.3 (0)</b>	.051	mixed (0)

#### Criterion-referenced test findings

Decisions regarding the OR were based on whether or not the  $(1-\alpha)$  C.I. included 1.0. If the  $(1-\alpha)$  C.I. fell completely below 1.0, this was interpreted as a protective odds ratio (1), thus favoring the Edison school. If the  $(1-\alpha)$  C.I. included 1.0 (0), this was interpreted as an equal odds situation. If the  $(1-\alpha)$  C.I. fell completely above 1.0 (-1), this was interpreted as an increase in odds for failing the state CRT relative to the comparison sample.

Interpretation of the OR tables: If the Breslow-Day statistic (B-D) is nonsignificant, one overall OR and  $(1-\alpha)$  C.I. can be used to represent the odds for failing the CRT relative to the comparison group. Thus, there are no trends reported for each specific year in the tables, only a rating in the B-D

column. If the B-D statistic is found to be statistically significant, then an overall common OR cannot be meaningfully interpreted; that is, there is a statistically significant change in the OR over years and yearly ORs are necessary. Thus, our summary ratings appear for each year of data and not in the B-D column. Table 3:7 highlights the trend ratings we have given to the grade level tests.

Table 3:7 Summary of Results on Criterion-Referenced Student Achievement Tests

Edison vs. District	1998	1999	B-D	Trend
Grade 3 Reading	-1	0		mixed (0)
Grade 4 Reading			-1	negative (-1)
Grade 4 Writing	-1	0		mixed (0)

Note: All comparisons with state as comparison group were negative

### Combined ratings

Given the total ratings for the trends that are highlighted in Table 3:8, this school has a mean rating of 0.11 which corresponds to an overall Mixed rating. In its 1999 annual report, Edison rated this school as Strongly Positive; and in its 2000 annual report, it rated the achievement gains since opening as Positive and the achievement gains in 1999-00 as Negative.

Table 3:8 Combined Overall Trends for Roosevelt-Edison

	Positive	Mixed	Negative
Norm Referenced	2 of 6	4 of 6	0 of 6
Criterion Referenced	0 of 3	2 of 3	1 of 3
TOTALS	3 of 9	4 of 9	2 of 9

The design behind the trends in the norm-referenced results are based on tracing individual students over 2 years. While some would argue that this is a better design than was used with the criterion-referenced results (tracing consecutive cohorts of students), one also has to consider the sample sizes. The sample size for the norm-referenced test was very small. While we received a database from Edison with nearly 500 records to perform this analysis, we were able to trace only 64 students in 1 cohort and 71 students in the other cohort. On the other hand, the test administration procedures are likely to be more regulated for the state-mandated CSAP, and the results we have for these trends include a much larger proportion of the total enrollment at the school.

Our findings are similar to what the district found on the District Achievement Level Tests (DALT). Results on the DALT indicate that the school is consistently below the district levels, but the gains made by Roosevelt-Edison on the DALT largely parallel the gains made by the district (i.e., the charter school is not gaining more than the district over time). The results to date indicate that this Edison school does not differ substantially from other district schools.