Exploring High and Improving Reading Achievement in Connecticut

Introduction

The National Education Goals Panel is an independent federal agency charged by Congress to "report on promising or effective actions being taken at the national, state, and local levels to achieve the National Education Goals". To fulfill this mandate and to help state policymakers, the Goals Panel has launched a series of publications called *Lessons from the States.* These publications investigate the programs and policies that seem to explain state progress toward the goals, as measured on the Goals Panel's indicators of progress. In 1998 the Goals Panel published both *Promising Practices: Progress toward the Goals 1998* and *Explaining Rapid Achievement Gains in Texas and North Carolina* as part of this series. The Goals Panel seeks to use its data to identify states making significant improvement or achieving at high levels, and then to probe the policies and programs - or other factors - that may account for this improved performance. While high performance is always of interest, the Panel specifically looks for "lessons" of public policy that might be applicable to other states.

The Goals Panel measures Goal 3, to improve student achievement, one of the most central goals, on the basis of performance on the National Assessment of Educational Progress (NAEP). In March 1999, new NAEP results on state performance in reading were released.

Connecticut Results on NAEP Reading Assessment and Other Goals Panel Indicators

Connecticut was the top scoring state on the 1998 4th grade NAEP Reading Assessment and the state which demonstrated the greatest amount of growth from 1992 to 1998. It was one of only five states (CT, CO, KY, NC, MS and the Virgin Islands) for which the average scale score on the 4th grade reading performance improved significantly from 1992 to 1998,[1] and one of seven states that improved significantly (CT, CO, KY, LA, MD, MN, MS and the Virgin Islands) in the percentage scoring proficient or better. The average scale score for Connecticut 8th graders was

[1] Because of differences in the exclusion rates of Special Education and Limited English Proficient students between 1998 and 1994, a special study was commissioned by NCES and conducted by the Educational Testing Service to see whether these differences would affect the NAEP results. The conclusion was that for Connecticut, even under "a worst-case scenario", the gains made were still statistically significant at the $p<.05$ level. (ETS Memo: 05/12/98).

also high. Its scale score was exceeded only by Maine and only by one point, and the percentage of 8th graders scoring proficient or better was exceeded by none and matched only by Maine. Connecticut was also the top performing state in the nation in writing, and the only one to perform significantly better than the US average, according to NAEP writing results released in September 1999.

In addition, Connecticut was one of only two states to receive 3 "gold stars" from the Panel in 1998 for achievement in math and science. Connecticut earned one gold star each for improved performance at 4th and 8th grades on mathematics on NAEP between 1992 and 1996, and a third in 8th grade science, where a 1998 study linking NAEP and the Third International Math and Science Study (TIMSS) indicated that only Singapore, among the group of 41 participating countries, would be expected to outperform Connecticut. (This is in contrast to the U.S. scores which were exceeded by nine countries participating in the TIMSS.)

The Panel also noted that Connecticut was among the highest performing states in the percentage of public school teachers participating in professional development programs in 1994, the last year for which these data are available.

The Goal Panel's Interest in a Connecticut Case Study of Reading Achievement

Because of its patterns of high achievement and improvement amidst a culture of strong professional development, the Goals Panel commissioned Dr. Joan Boykoff Baron, an independent consultant and part-time Lecturer on Education at the Harvard Graduate School of Education, to conduct an analysis of Connecticut's policies and practices related to reading achievement. As part of this case study, the Goals Panel commissioned analyses of both Connecticut's NAEP results and its own statewide test results as well as the extent to which the state's wealth, race/ethnicity and parental education, rather than its education policies and programs, may explain its high and rising reading scores. Finally, the Panel requested identification of the policies and practices which are likely to improve reading.

Research Questions

This study addresses the following six research questions:

1. How consistent is the pattern of results on Connecticut's own statewide tests with those on NAEP?
2. To what extent did different economic, educational and racial/ethnic subgroups in Connecticut make progress during the period of growth on NAEP and did the gaps between these subgroups change?

3. To what extent can Connecticut's high and improved reading scores be explained by its educational policies rather than its wealth, race/ethnicity, and parental education?
4. What *state-level* policies and practices are likely to have contributed to Connecticut's improved reading scores?
5. What *district-level* policies and practices are likely to have contributed to the improved reading scores in those districts with the greatest gains?
6. How is reading being taught in classrooms in the districts which made the greatest progress?

Methodology and Description of the Study

In order to address questions pertaining to the growth of the state as a whole and the performance of different racial/ethnic and socioeconomic subgroups on the NAEP and Connecticut statewide test scores, additional data from both national and statewide test scores were examined for the relevant subpopulations. These are presented in the first section of the report.

The largest part of this study is the analysis of policies and practices at both the state and local levels. State and local-district policies and practices were identified through more than a dozen interviews with educators and policymakers at the state level including Connecticut Department of Education staff, members of the Education Committee of Connecticut General Assembly, and more than two dozen educators at the local-district level. (A list of the individuals interviewed is presented in Appendix A.) The state-level section of the report highlights two sets of policies – (1) those in place between 1993 and 1998 that were identified by those school districts making the greatest progress in reading as the policies that helped them in their work, and (2) those that have been implemented within the last three years – too late to make a difference in the gains in reading scores from 1993 to 1998 – but identified through the interviews as likely to improve future reading achievement.

Interviews conducted with local district personnel in the Connecticut school districts showing the greatest improvement in reading between 1993 and 1998 were valuable for two reasons. First, they provide some important checks on the state-level interviews because they identified which of the policies and practices at the state level had been perceived as most useful to them. Second, they explain what administrators and teachers did in response to state policies. This set of findings is critical from the vantage point of Connecticut's former Commissioner of Education, Gerald N. Tirozzi, who reminded us that, "Policy begins when the teacher closes the classroom door." Unless teachers respond, state and local policies do not have much effect.

Using a "successful-schools" approach (Brookover, 1979 Edmonds, 1979) Connecticut Mastery Test (CMT) scores were examined to determine which districts had made the greatest growth on the Reading Test during the period between 1993 (the first administration of a revised form of the tests, referred to as the Second Generation CMTs) and 1998, the last time it was administered.[2] More than two dozen interviews were conducted with educators in these districts including superintendents, school board members, principals, language arts coordinators, reading consultants, speech and language pathologists, special education teachers, classroom teachers and providers of in-service professional development in reading, including university professors. Reading lessons were observed in eight classrooms, three in June 1999 before school ended, and five in summer school.

Three basic interview questions were asked: (1) What kinds of local policies and practices contributed to your district's strong improvement in reading between 1993 and 1998?; (2) What state policies and practices, if any, helped you in your work?; and (3) What state policies and practices, if any, hindered you in your work?

Emanating from both the state-level and local-district interviews is a policy-actionable story that can be implemented in other states. One is reminded of the apocryphal anecdote told by Michael Fullan.[3]

> After observing for a day in a particularly successful school with outstanding instruction and rapidly growing student achievement, the education professor stopped by to see the principal and asked : "Your school is really great, but will it work in theory?"

By studying successful schools and classroom practices, one is confronted with the reciprocal nature of theory, practice and policy-making. In successful educational systems, strong classroom practices help to inform both policy and theory. And, as Commissioner Tirozzi noted, in successful schools, those policies and theories ultimately inform classroom practices.

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[2] Interview Selection Criteria were: (1) Districts who made at least 10 Index-Points Growth between 1993-1998 on the *Degrees of Reading Power* section of the Connecticut Mastery Test at two or more grade levels (Grades 4, 6, and 8); and (2) Districts with at least 100 students enrolled in each grade level.

[3] Michael G. Fullan, Dean of the Faculty of Education at the University of Toronto, and author of *The New Meaning of Educational Change* (1991) told this story during an invited address on school improvement delivered to state and local policymakers and administrators in Connecticut in the early 1990s.

SECTION 1

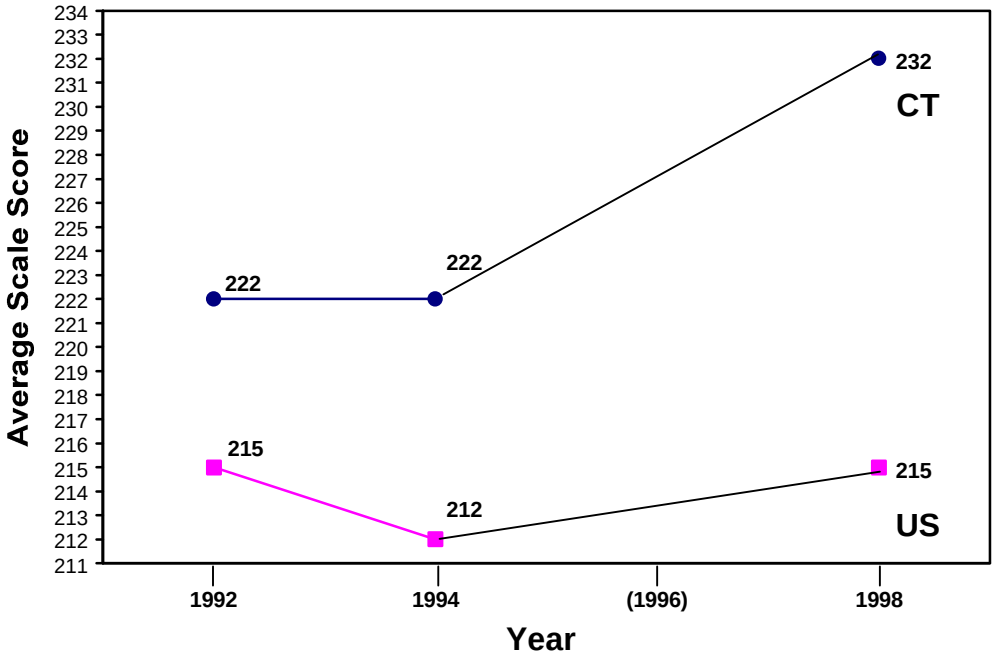
Connecticut and National Achievement in Reading

There are considerable data available to analyze the achievement of Connecticut students in reading since 1985. Data collected by the National Assessment of Educational Progress (NAEP) state-by-state assessments of Reading in 1992, 1994, and 1998 allow a comparison of Connecticut's performance to that of other states. Data collected annually on the statewide Connecticut Mastery Tests in reading administered in Grades 4, 6, and 8 provide Connecticut-specific results in greater detail.

Connecticut's Performance in Reading Compared to That of the Nation

In 1992, 1994 and 1998, state-by-state reading data were collected for Grade 4 students, with Grade 8 added in 1998.[4] Figure 1 presents the amount of improvement in the average scores in Connecticut and the nation for Grades 4 over the three tests administered. In 1998, Connecticut

Figure 1. Trends in National and Connecticut Average Scale Scores in Grade 4 on NAEP Reading, 1992-1998



NOTE: Years in parentheses ( ) indicate there were no data collected for that year.

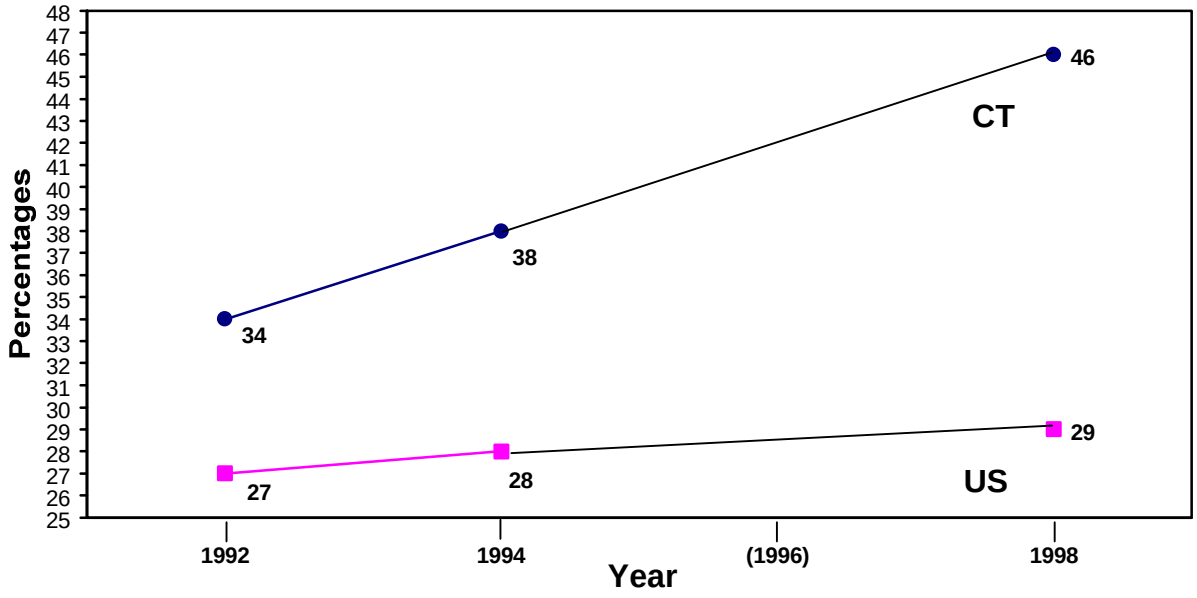
Source: National Center for Educational Statistics, *NAEP 1998 Reading, State Report for Connecticut,* Table 1A

[4] In each of the four state-by-state assessments to date, between 39 and 43 states and jurisdictions participated, each testing between 1800 and 2900 students in between 30 and 148 schools.

not only scored higher (232) than students nationally (215), but the slope of its increase was steeper than that of U.S. students. Between 1992 and 1998, Connecticut's 4th-grade students gained an average of 10 scale score points (on a scale of 500) while their national counterparts stayed the same.[5] According to the NCES (1999, NAEP Reading Report, p.18), Connecticut's eighth-grade students, tested for the first time, achieved the second highest average score (272), one point below that of Maine and 11 points higher than the national average (261).

Figure 2 shows the trends in national and Connecticut percentages of Grade 4 and 8 students at or above proficiency in reading on NAEP, 1992-1998.[6] According to NCES, (1998 NAEP State Reading Report, p.20), a pattern similar to that of the average scores holds for the percentages of students at or above proficiency on the NAEP tests. Again, Connecticut (46% at or above proficiency) both outperforms the nation (29% at or above proficiency) and all other states and shows significant improvement in these percentages from 1992 to 1998. Here, we see that the

Figure 2. Trends in National and Connecticut Percentages of Students in Grade 4 At or Above the Proficient Level on NAEP Reading, 1992-1998



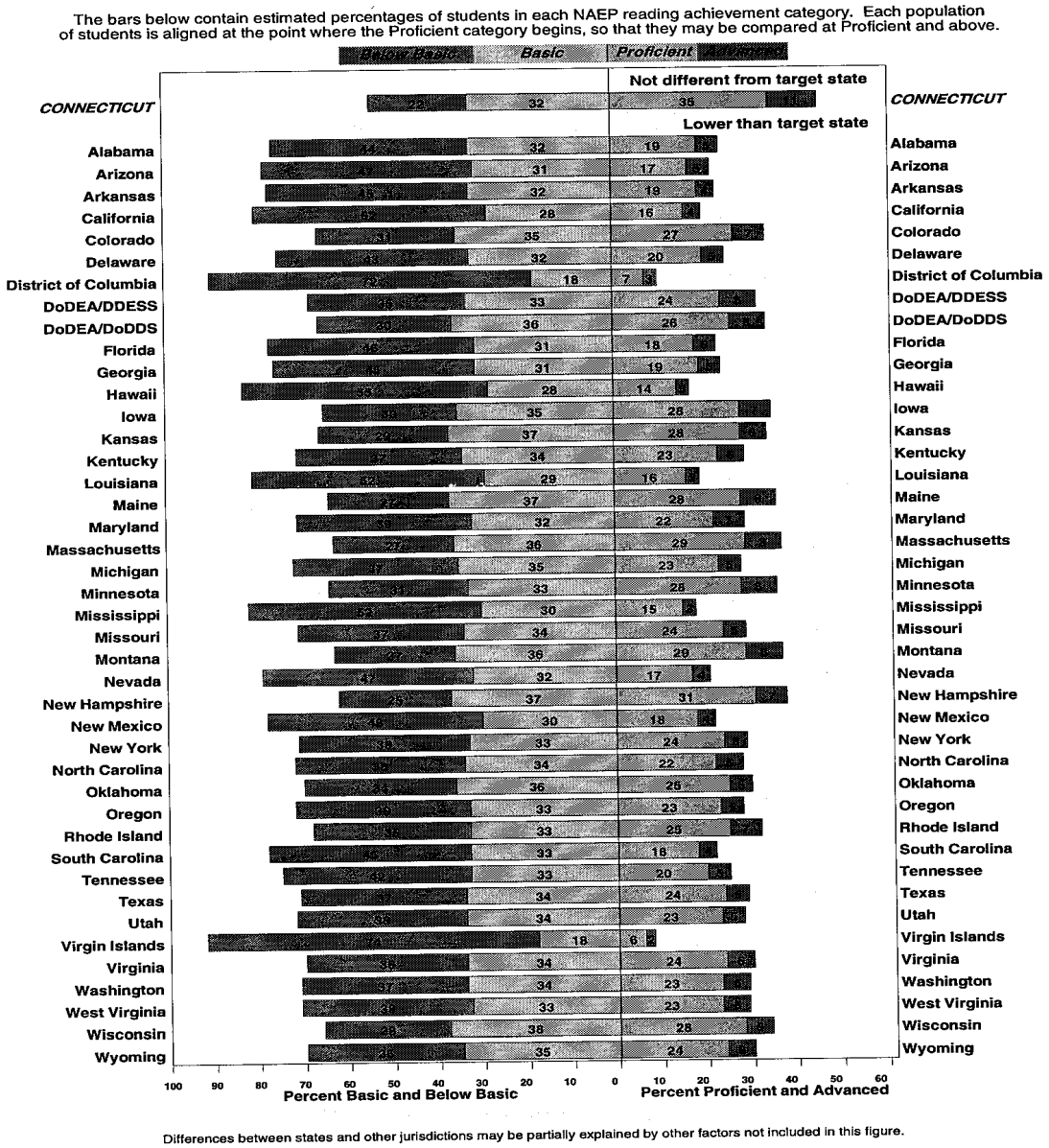
NOTE: Years in parentheses ( ) indicate there were no data collected for that year.

Source: National Center for Educational Statistics, *NAEP 1998 Reading Report Card for the Nation and the States,* Table 5.3

[5] Longitudinal data for 9-year-olds for the ten NAEP Reading tests administered between 1971 and 1996 revealed that "the reading scores of the [U.S.] 9-year-olds increased until 1980, but declined slightly since that time (NCES, 1996, pp. iv and 129)". It is against this backdrop of a twenty-year national decline in 9-year-olds' reading scores that the growth in Connecticut's 9-year-olds should be interpreted.

percentages of students in Connecticut at or above Proficiency in Grade 4 sharply increased from 34% to 46% between 1992 and 1998 while the percentages of those in the nation rose from 27% to 29% during the same period. The top line on Figure 3 reveals that Connecticut's percentage of 4th-grade students at or above proficient was in a class by itself–significantly higher than any of the other states and jurisdictions participating in the assessment.

Figure 3. Percentages of Grade 4 Public School Students at or above the Proficient Level in Connectict Compared with Other States Participating in 1998 NAEP Reading



Differences between states and other jurisdictions may be partially explained by other factors not included in this figure.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Reading Assessment.

Source: National Center for Education Statistics, *National Assessment of Educational Progress (NAEP), 1998 Reading Assessment*

[6] NAEP's Proficient Level is the National Education Goals Panel's definition of achieving challenging subject matter (Goal 3).

Trends on Connecticut's Mastery Test (Degrees of Reading Power Test)

Since 1985, Connecticut has administered statewide Mastery Tests to students in grades 4, 6, and 8 in Reading, Language Arts, and Mathematics. In 1995, Connecticut Academic Performances Tests were added for grade 10 students in Reading, Language Arts, Mathematics, and Science. This section will examine the trends on a CMT reading test administered in grades 4, 6, and 8 – the Degrees of Reading Power Test developed by Touchstone Applied Science Associates (TASA).[7]

Trends in Connecticut Mastery Test Average Scale Scores in Reading for Grade 4 and 8 Students, 1985-98.

At both grades 4 and 8, the two levels assessed by NAEP, there was continual progress in reading as measured by changes in the average scale scores from the inception of the CMT in 1985 to the last time each version of the test was administered. The first version of the test (referred to as The First Generation) was administered between 1985 and 1992 after which an updated version of the test (referred to as The Second Generation) was administered, beginning in 1993 and continuing to the present.[8] The scale-score growth on the First Generation CMT between 1985 and 1992 was 5 points in Grade 4 and 2 points in Grade 8. The average scale score on the Second Generation CMT between 1993 and 1998 increased by 3 points in grade 4 and 2 points in grade 8.

Trends in Connecticut Mastery Test Percentages of Students At or Above the Goal Level in Reading for Grade 4 and 8 Students, 1993-1998.

Just as NAEP established a Proficiency Level, the Connecticut State Department of Education, using recommendations from a committee of educators, established a Goal Level as its standard of excellence. As illustrated in Figure 4, in both Grades 4 and 8, there was an overall trend toward higher percentages of students scoring at or above the Goal level.[9] In 1998, 54.4% of 4th grade students met the Goals as compared with 44.6% in 1993. In grade 8, 66.4% met the goal in 1998 as compared with 58.9% in 1993.

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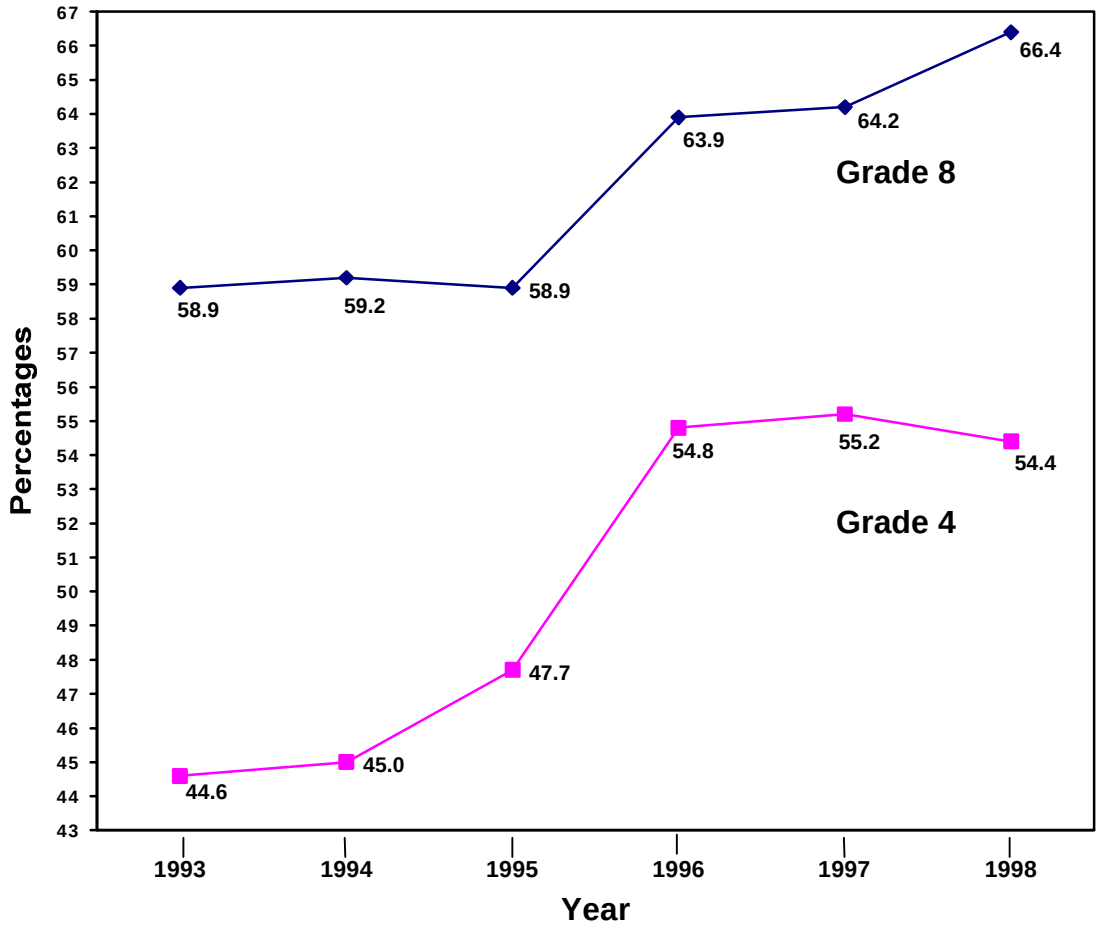
[7] Connecticut also administers a second reading test which, since the implementation of its Second Generation Test in 1993 uses the NAEP Reading Framework as its test objectives in grades 4, 6, and 8. This test will be described in Section 2, the state policy section of this report.

[8] Because of changes between the First and Second Generation CMTs and their standards, one cannot compare the scores from the different generations.

[9] In Grade 4, the percentages of students scoring at or above the CMT Goal declined slightly from 1997 to 1998. Because NAEP does not collect state-by-state results annually, it is not possible to know whether this trend would have been true of NAEP scores as well, i.e., whether the gains made by Connecticut between 1994 and 1998 were equally distributed over that four-year period or occurred unevenly.

Figure 4. Trends in Percentages of Grade 4 and 8 Students At or Above the Connecticut Goal Level in Reading on CMT, 1993-1998



Source: Connecticut State Department of Education Press Release on CMT Mastery Scores, Chart 2, February 3, 1999

Summary. Connecticut's statewide data show the same pattern of improvement as the Connecticut data from the NAEP state-by-state assessments conducted during the same period. On both the statewide and national tests, Connecticut students improved on both the average scale scores and the percentages at or above the national Proficiency Level and the Connecticut Goal Level. Connecticut's growth occurred during a period for which the average fourth grade reading scores in the nation were relatively stable.

How to Explain Connecticut's High and Improving Performance

From the Coleman Report (Coleman, et al., 1966) until today (Grissmer, 1998), researchers have demonstrated the strong statistical relationship of two variables – family income and parents' education levels – with student achievement. However, Connecticut's *improvement* in reading, as

opposed to its absolute level of performance cannot be explained by the high income and education levels of its parents.

The Relationship Between Connecticut's High Levels of Income and Parent Education and its High Achievement Levels

A recent study in Connecticut (Connecticut Conference of Municipalities, 1997, p.5) reported a correlation of 0.72 between the percentage of students receiving Free or Reduced-Price Lunch, a common proxy for poverty, and Connecticut Mastery Tests Weighted Index Scores. This was the strongest relationship of any variable with student achievement. U.S. Census data reveal that Connecticut had the highest Per Capita Income (1991) and one of the two smallest Percentages of Students with Free Lunch (1987) among the states.[10] Furthermore, U.S. Census data (1990) indicate that Connecticut's parents, along with those in Massachusetts, are the most highly educated in the U.S. and the world, with 31 percent of their parents having graduated from college (see *Education in States and Nations*, 1990, Figure 21a.).[11]

Given the strong relationships of family income and parent education with student achievement, and Connecticut's highest ranking on these two variables, is the case closed? Do these family-background variables fully explain why Connecticut is both the highest achieving state in reading and the one with the greatest growth between 1992 and 1998? Logically, these data can explain only the first set of findings – Connecticut's high achievement. Given its wealthy and educated parents, Connecticut would be expected to have the highest (or close to the highest) reading scores at any point in time – e.g., 1992, 1994 and/or 1998. However, it is more difficult to use the statistical relationship between parents' wealth and students' achievement or parents' education and students' achievement to explain Connecticut's *improvement* during the mid-1990's unless Connecticut's income and parents' educational levels[12] also rose during that time period and rose more rapidly than those elsewhere in the nation. This was not the case. Tables 1 and 2 show that in the period between 1990 and 1995, the median income of Connecticut dropped – both in absolute terms and relative to other states. Whereas Connecticut was the wealthiest state

[10] Only New Hampshire had a smaller percentage of Students with Free Lunch and Connecticut was tied with Utah and Wyoming.

[11] The average percentage of parents having graduated from college for the U.S. is 23%, higher than all of the other participating countries.

[12] Since the 1990 U.S. Census, there are no data on the highest level of education attained by parents in Connecticut school districts; therefore, it is not possible to determine any differences on this variable between 1993-1998.

Table 1. Median Household Income For the United States and Connecticut, 1990-1995*

	1990 U.S. Census	1994	1995
U.S.	35,046	33,170	34,076
Connecticut	48,648	43,262	40,273
Number of States with higher median incomes	0	3 (AK, HI, NJ)	4 (AK, HI, MO, NJ)

***1995 dollars adjusted by the Consumer Price Index for all urban consumers**

Source: *Digest of Education Statistics (1997)*, Table 20

in 1990, by 1995, four states had higher median incomes. During the same time period, the number of Connecticut's citizens below the poverty index grew from 6.8% to 9.7% while the comparable national percentages of citizens below the poverty index grew from 13.1% to 13.8%. Whereas only one state had a lower percentage of people below the poverty index in 1990, by 1995, eight states had lower percentages.

Table 2. Percentage of Persons Below the Poverty Index in the U.S. and Connecticut 1990-1995*

	1990 U.S. Census	1995
U.S.	13.1	13.8
Connecticut	6.8	9.7
Number of States below Connecticut	1 (NH)	8 (IN, MN, MO, NE, NH, NJ, UT, WI)

Source: *Digest of Education Statistics (1997)*, Table 20

Therefore, Connecticut's improvement in reading is not explained by increases in the wealth of its parents. Specifically, Connecticut's wealth was declining in constant 1995 U.S. dollars while its reading scores were rising (see Table 1 and Figures 1 - 4). Moreover, the increasing spread between Connecticut's reading performance and that of the nation's occurred during the period in which Connecticut's economic condition declined more than that of the nation's (see Tables 1 and 2 and Figure 1). This confirms that wealth, *per se*, is not the variable that accounts for Connecticut's achievement gains. The next set of results looks specifically at Connecticut's less wealthy students to see whether they were progressing at rates similar to their more affluent counterparts.

Who in Connecticut Is Making Progress

Connecticut is a land of stark contrasts. It was not uncommon during the several rounds of the *Sheff v. O'Neill* hearings on equity in education[13] (1989 to the present) to hear talk of "two Connecticuts" – (1) suburban Connecticut composed primarily of wealthy districts with well-educated parents and (2) urban Connecticut composed primarily of poor and minority children with less well-educated parents. A study of the Connecticut Council of Municipalities (1997, p. ix) reported that the rate of student poverty, measured by participation in subsidized lunch program, is over 150 times higher in the poorest town than the richest town (78% compared to 0.5%).

Connecticut's Educational Reference Groups (ERG)

To more accurately describe the differences among its 169 towns and cities, Connecticut in 1996 developed a metric called Educational Reference Groups, the third generation of the State Department of Education's classification of school districts. A multivariate statistical procedure known as cluster analysis resulted in the creation of nine groups of districts with similar socioeconomic status and needs. Table 3 contains the Group Characteristics of the 1996 ERGs.[14]

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[13] In the 1996 Sheff O'Neill decision, the Connecticut Supreme Court found the state law requiring children to go to school in the towns where they live unconstitutional. The court held that the law contributes to the racial, economic, and ethnic isolation of poor and minority children in Connecticut city schools thereby depriving them of an equal educational opportunity. The Court directed the General Assembly to come up with way to satisfy the constitutional requirements.

[14] The ERGs were created from the following seven variables:

Income--From NCES/Census data, the median family income in 1989 for families with children in public school.

Education--From NCES/Census data, the percentage of children attending public school with at least one parent with a Bachelor's degree or higher.

Occupation--From NCES/Census data, the percentage of public school children's parents aged 16 or older, employed, and holding jobs in executive managerial and professional specialty occupations.

Poverty--The number of all children aged 5-17 within school district boundaries who received Aid for Dependent Children in 1994-95 divided by the October 1994 district public school enrollment.

Family Structure--From NCES/Census data, the percentage of public school children living in families without a wife or husband present or in non-family households.

Home Language--From NCES/Census data, the percentage of public school children whose families speak a language other than English at home.

ERG A has the highest income, educational and occupational levels as well as the lowest percent of children in single-parent families and families receiving Aid to Families with Dependent Children (ADFC). By contrast, ERG I, which contains the state's three largest cities, Hartford, New Haven and Bridgeport, has the lowest income, educational and occupational levels as well as the highest percentage of children in single-parent families and families receiving AFDC. It also has the highest percentage of children from Non-English Home languages and the largest schools.

Table 3. Group Characteristics of Connecticut's 1996 Educational Reference Groups (ERGs)

	1996 ERG								
Variable	A	B	C	D	E	F	G	H	I
Median Family Income	$98,495	$66,724	$52,195	$53,620	$44,197	$47,036	$41,386	$40,494	$24,349
Percent with Bachelor's Degree	79.7%	62.9%	49.2%	42.2%	32.1%	28.9%	15.5%	22.4%	11.9%
Percent Managerial/ Professional Occupation	58.2%	48.9%	40.6%	37.5%	30.8%	30.6%	20.6%	26.3%	18.1%
Percent Children in Single-Parent Families	9.6%	12.0%	12.9%	15.9%	16.3%	20.1%	18.8%	28.9%	51.4%
Percent Children Receiving AFDC	0.6%	1.8%	2.2%	3.4%	3.7%	7.0%	7.2%	17.6%	42.6%
Percent Non-English Home Language	6.8%	7.7%	3.4%	7.4%	3.8%	7.2%	3.4%	12.7%	37.4%
1994 Average Enrollment	2,309	3,795	1,093	3,122	649	4,489	1,412	5,829	13,258
Number of Districts	12	19	38	21	26	16	16	14	7

Source: Connecticut State Department of Education (1996, November). *Educational Reference Groups, 1996,* Research Bulletin Number 1, School Year 1996-97, Hartford, CT: Author.

District Enrollment-- The 1994 school district enrollment was classified into ten groups (deciles) and then given a half-weighting in the model.

The ERGs provide a context for districts to critically review their resources, student participation and student achievement. They also permit policymakers in the legislature and members of the State Board of Education to monitor trends in student achievement and instructional resources more strategically. Consequently, much of the data on the annual Strategic School Profiles, the Connecticut Mastery Test Results, and other Department of Education publications include averages both statewide and by ERG.

Connecticut Mastery Test Index Scores

Before looking further at Connecticut's Mastery Test Results, it is important to understand the metric, Connecticut Index Score, developed by Title I evaluation staff in the Connecticut State Department of Education. This metric is used in Figures 5-7. The Index Score was considered by policymakers and educators to have advantages over both average scores and percentages of students at or above the Goal Level. Average scores are affected by extreme scores and the percentages of students above the goal does not acknowledge improvement in those students who have moved from below the remedial standard to above it. Therefore, both Department officials and local district personnel prefer Index Scores because they are more sensitive to growth at two important points on the continuum. That is, they take into account the growth of students at *both the Goal level and the Remedial Level.* Mathematically, the Connecticut Index Score has the net effect of counting a student who meets the State Goal twice, a student who meets the Remedial Standard once, and a student below the Remedial Standard not at all.[15] Department officials and policymakers also prefer Index Scores because they can be aggregated across different grade levels as in Figures 5 through 7 or even different content areas (Connecticut Conference of Municipalities, 1997).

The Gaps Among Connecticut's Educational Reference Groups (ERGs) on the CMTs

Figure 5 shows the strong relationship between an ERG's socioeconomic status and its scores on the Connecticut Mastery Test as measured by the Connecticut Index Scores. The average scores of the ERGs line up predictably according to their socioeconomic status variables with the wealthiest districts performing highest and the poorest districts performing lowest. However, as

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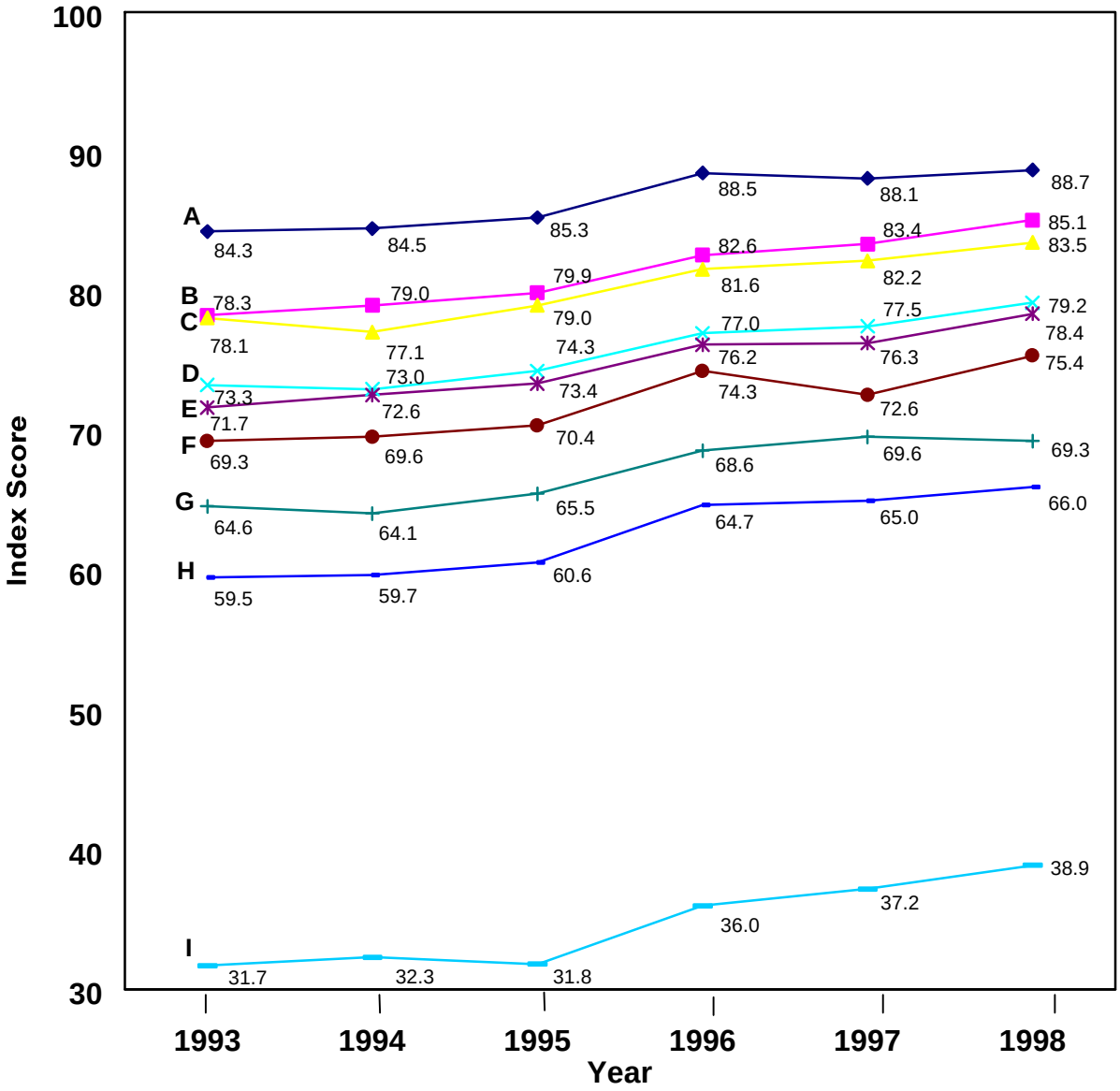
[15] The method for calculating Connecticut's Index Scores is illustrated with two hypothetical examples. Districts X and Y have the following distributions of Reading Test data:

Percent above the Goal	30	50
Percent below the Remedial Standard	20	10
Index Score.....	55	70

The computations follow:
District X: Those at or above the Goal (30) plus Those at or above the Remedial Standard (30 + 50) = 110 divided by 2 = 55. *District Y:* Those at or above the Goal (50) plus Those at or above the Remedial Standard and the State Goal (50 + 40) 140 divided by 2 = 70.

pointed out in the 1998 Connecticut *Condition of Education* (p.21), two other findings are important in understanding the impact of Connecticut's policies on instructional practice. *All* Education Reference Groups (ERGs) showed progress from 1993 to 1998 on their Index Scores

Figure 5. Gaps in Connecticut Mastery Test Index Scores in Reading by Education Reference Group, 1993-1998



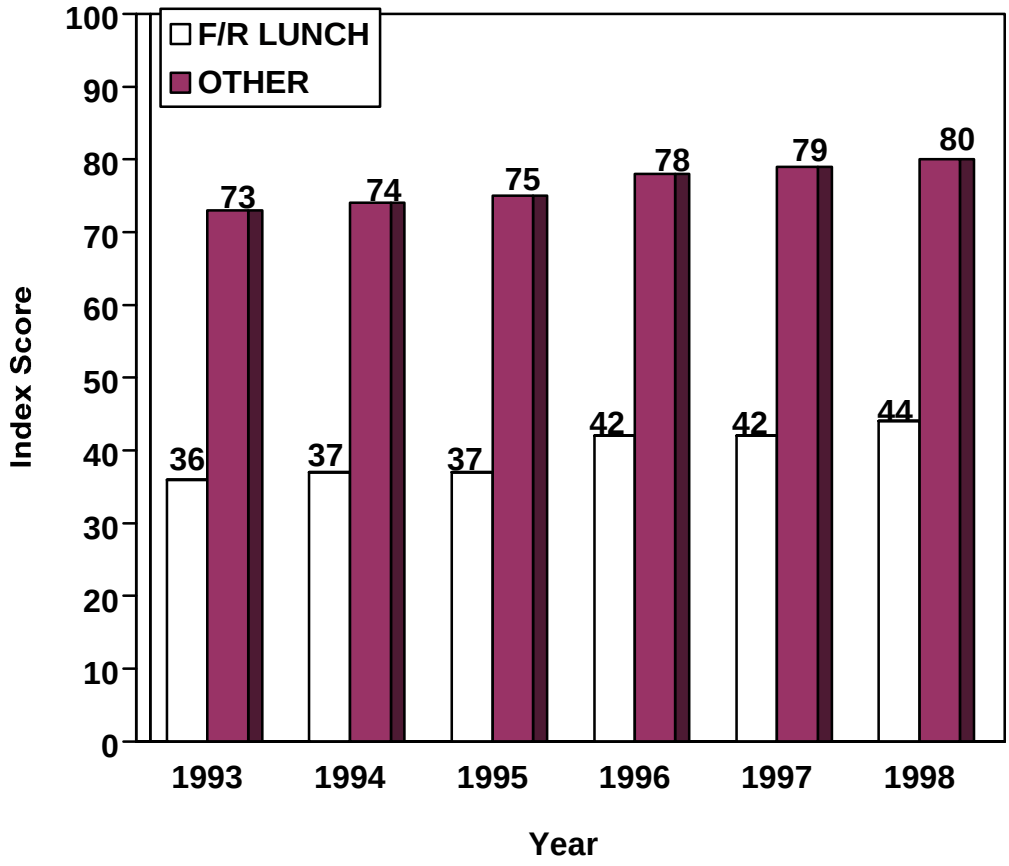
Source: Connecticut State Department of Education (1999), *1997-1998 Condition of Education Report*, Page 21

The Gap Between High and Low Income Families Using Participation in Free/Reduced-Price Lunch Program on the CMTs

According to the 1998 Connecticut *Condition of Education* (p.22), Figure 6 illustrates, not surprisingly, that *students from low-income families (defined as those receiving free or reduced-price meals) produced a lower index score in Reading than students not participating in the meal program.* However, there was evidence for two other important and desirable policy-related

findings: *"The Index Scores for low-income students increased on the reading tests from 1993 through 1998, and the large disparity in performance between these students and students not participating in the meal program closed somewhat."*

Figure 6. Trends in Connecticut Mastery Test Index Scores in Reading in Grades 4, 6 and 8 by Participation in Free/Reduced-Price Lunch Program, 1993-1998



Summary

The data on Figures 5 and 6 confirm the persistence of the relationship between socioeconomic variables and reading achievement. However, because the gaps between the State's wealthiest and poorest groups of districts are decreasing and the absolute and relative wealth of Connecticut's parents decreased between 1992 and 1998, it is safe to conclude that wealth *per se* does not explain Connecticut's improved reading achievement between 1992-1998.

Changes in the Nature of Connecticut's Racial/Ethnic Demographics

Connecticut's population is as heterogeneous as that of the nation and follows similar demographic change patterns to those nationwide during the mid-1990's. According to the 1990 Census data, there were twenty-one states with smaller percentages of minority students (Black and Hispanic) than Connecticut (Grissmer, 1999). In Connecticut, from 1992 to 1998, the percentage of Black students increased from 12.9 to 13.7; the percentage of Hispanic students increased from 10.7 to 12.1; and the percentage of White students decreased from 73.8 to 71.5. The groups whose percentages increased are those who typically score lower in reading achievement. *Therefore, it is unlikely that the overall growth in Connecticut's achievement can be attributed to changes in the racial/ethnic composition of the state.*

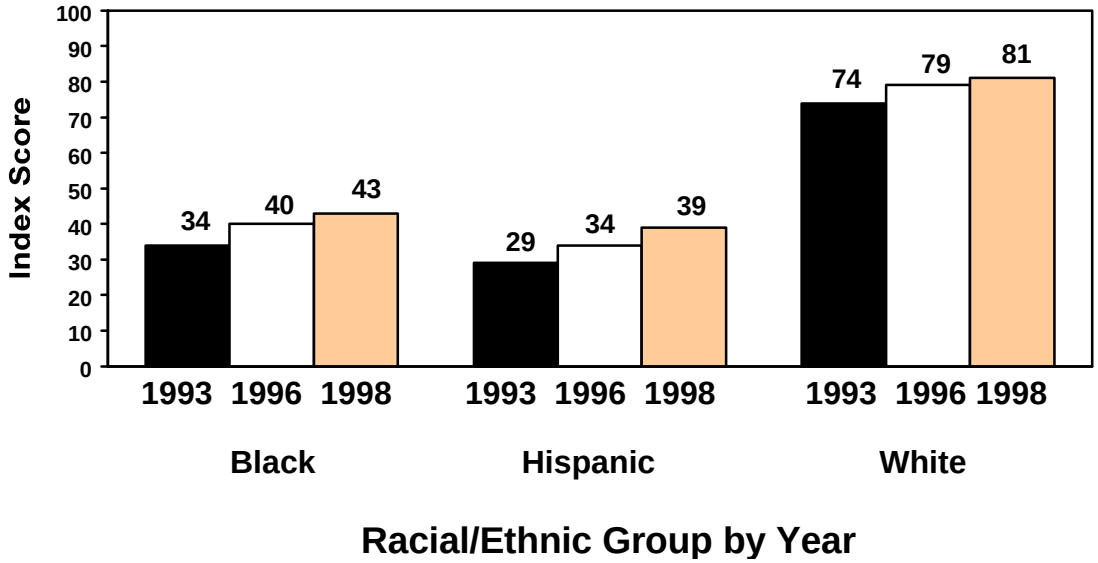
The Gaps among Racial/Ethnic Groups

Racial/Ethnic Data on CMTs at Grades 4, 6, and 8

According to the 1998 *Condition of Education* in Connecticut (p. 22), Figure 7 shows that for each year between 1993 and 1998:

> *Students from the black, Hispanic, and white racial/ethnic groups showed progress from 1993 to 1998 on the index scores for grades 4, 6, and 8 in*

Figure 7. Gaps in Connecticut Mastery Test
Index Scores in Reading in Grades 4, 6 and 8 by Racial/Ethnic Group
1993-1993



Source: Connecticut State Department of Education (1999*), 1997-1998 Condition of Education Report, Page 22*

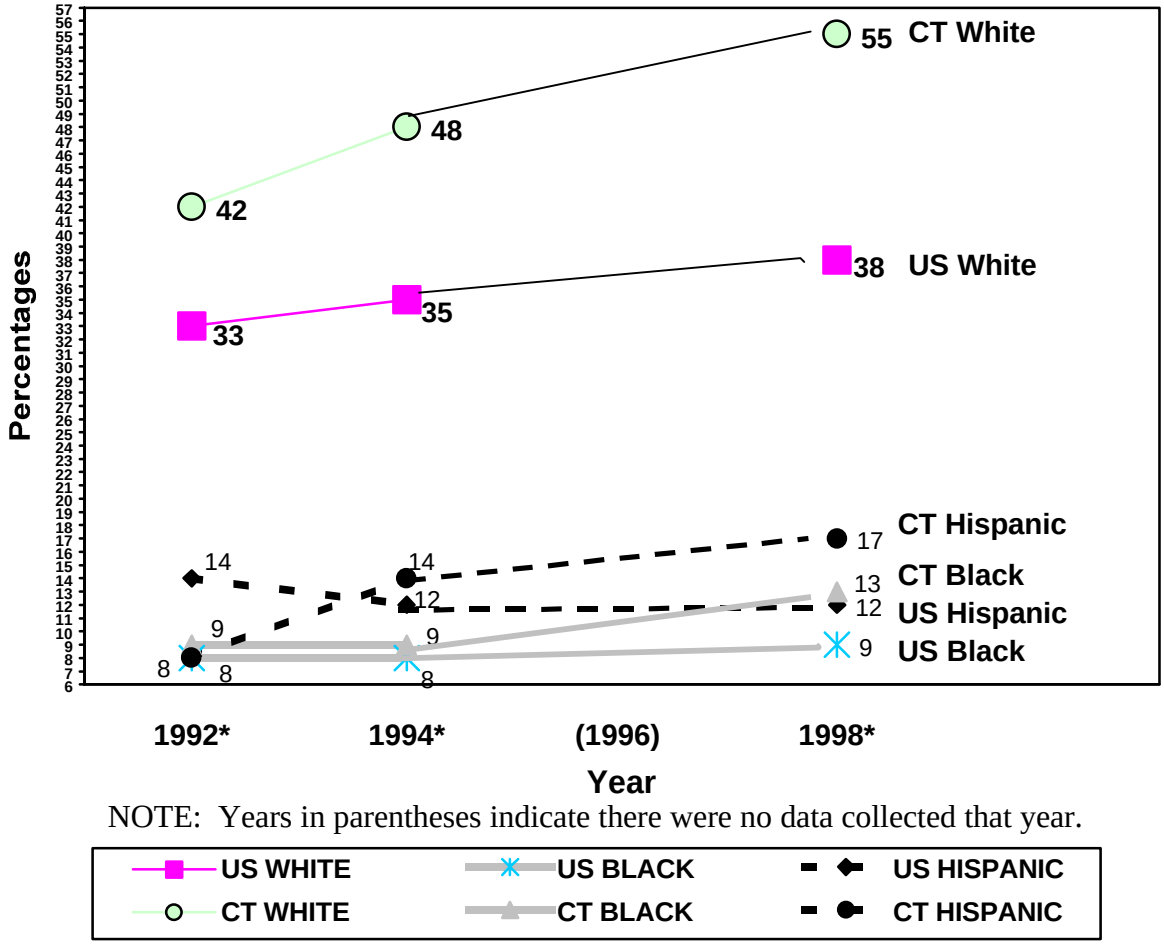
Reading. The index score gain for black and Hispanic students was greater than the gain for white students; however, the index scores for black and Hispanic students remained substantially below those of white students. [16]

The gaps between White and Black students closed by 2 Index-Score points and that between White and Hispanic students closed by 3.

Racial/Ethnic Data on NAEP 9-year-olds for Connecticut and the Nation

Data released in NAEP's state-by-state reports include the percentages of 9-year-old students at or above Proficient for each Racial/Ethnic Group. These data are presented in Figure 8 and illustrate the following conclusions:

Figure 8. Trends in National and Connecticut Percentages of 9-Year-Old Students At or Above Proficient by Race/Ethnicity on NAEP Reading, 1992-1998



NOTE: Years in parentheses indicate there were no data collected that year.

Source: National Center for Education Statistics *NAEP 1998 Reading Report for Connecticut*, Table 3B included.

Connecticut's Black, Hispanic, and White students outperformed their national counterparts in 1992, 1994, and 1998. In 1998, Connecticut's White students out-performed their national counterparts 55% to 38%; Connecticut's Black students out-performed their national counterparts 13% to 9%; and Connecticut's Hispanic students out-performed their national counterparts 17% to 12%.

Connecticut's Black, Hispanic, and White students made greater growth than their national counterparts between 1992 and 1998. The growth of Connecticut Blacks was 4 percentage points compared to Blacks nationally who improved 1 percentage point; the growth of Connecticut Hispanics was 9 percentage points compared to U.S. Hispanics whose performance decreased by 2 percentage points; and the growth of Connecticut Whites was 13 percentage points compared to U.S. Whites whose growth was 5 percentage points.

Connecticut's White students made greater progress from 1992 to 1998 (13 points) than their Black (4 points) or Hispanic (9 points) counterparts on the percentages of students performing at or above proficiency with the corresponding gaps increasing.

Summary: Between 1992 and 1998, both the achievement levels and improvement in reading of all racial/ethnic groups in Connecticut was greater than that of their national counterparts as measured by both their scale scores and the percentages of students at or above proficiency. On the CMTs across grades 4, 6 and 8, the gaps between Whites and both Blacks and Hispanics decreased slightly for students in grades 4, 6, and 8 combined. However, on the NAEP tests in grade 4, the gaps between White students in Connecticut and their Black and Hispanic counterparts increased.

Summary of Section 1

Based on the analyses of NAEP and CMT data, research questions 1 through 3 can be answered:

1. The pattern of results on Connecticut's own statewide tests is the same as that on NAEP. Connecticut's growth in reading between 1992 and 1998 is well documented on both instruments.
2. All socioeconomic groups - rich and poor, and major racial/ethnic groups – Black, Hispanic and White – have made progress in reading as measured on both NAEP and Connecticut tests. Although there are still large differences in the achievement of these subgroups, the gaps have decreased slightly on Connecticut's tests but not on NAEP.
3. Whereas Connecticut's wealth, race/ethnicity and parental education can be used to explain the state's high achievement in reading, they cannot explain Connecticut's strong improvement in reading between 1992-1998. All of the changes in those variables would predict lower scores; in 1998, Connecticut had lower median income, more persons above

the poverty index, and a higher percentages of Black and Hispanic students than it had in 1992.

Therefore, the major sources of Connecticut's improvement in reading between 1992-1998 lie beyond its demographic characteristics. The first part of Section 2 will address the fourth research question: What *state-level policies and practices* are likely to have contributed to Connecticut's improved reading scores? These were identified by both state-level policymakers and personnel in the ten districts who made the greatest gains in reading between 1993 and 1998. These will include establishing state-level goals and accountability mechanisms like the Connecticut Mastery Test that report data in usable ways; providing educational and financial assistance to the state's neediest districts; and implementing policies and practices to attract and support a strong group of teachers and administrators. It will show how effective state-level policy can serve as a catalyst for strong local policy. Section 2 will also highlight several more recent state policies (implemented within the last three years) that are too new to have affected past reading score gains. However, based on interviews with local districts, state-level education officials, and members of the Connecticut General Assembly, they provide evidence for sustained policy-based leadership targeted at improving reading proficiency. A fuller description of these newer policies is presented in Appendix B.

Section 3 will address the fifth and sixth research questions by describing the *district-level policies and practices* cited by the districts with the greatest gains in reading as those that contributed to their improved reading scores. This section will look also inside classrooms to see how teachers in these ten districts teach reading and provide additional help for those students identified as having difficulty in learning to read. This final section is intended to help policymakers to determine whether the organizational and instructional changes made by districts are consonant with the original intentions of the state-level policies and whether there are any significant unintended consequences. In addition, the descriptions of reading strategies used by classroom teachers and specialists working with children having difficulty in learning to read can provide reading researchers with data to establish whether the changes in instruction are consonant with current theory and research in reading.

SECTION 2

State Policies and Practices Identified by Districts As Contributing Most to Local Progress

Collectively, the ten Connecticut districts that made the greatest progress in reading between 1990 and 1998[17] identified six state-level policies and practices that they felt had contributed to their success. The first three relate to Connecticut Mastery Tests (CMTs) and their associated reporting practices as catalysts for curricular and instructional changes. The fourth underscores the importance of school-level reporting for capturing the attention of educators and the public. The fifth describes the Legislature's development of categorical grants for the State's neediest districts, a policy direction which has intensified over the past decade. The final policy arena is that of the teaching quality. In the mid-1980's Connecticut made a strong commitment to enhancing both the salaries and standards for its teachers, which yielded a well-educated and experienced group of teachers in Connecticut schools during the period of Connecticut's improvement on NAEP during the mid-1990s. These six policies are listed in Table 4 and described in this section.

Table 4. State-Level Policies and Practices in Place between 1992-98

- The State Test (CMT) Objectives and Specifications As a Catalyst for District Realignment of Curriculum and Instruction
- The State's Reporting of CMT Results in Multiple and Useful Ways
- Tests Made Available to Local Districts at Grades 3, 5, and 7 to Supplement the CMTs at Grades 4, 6, and 8
- School Profiles Publicly Reported to Local Boards of Education and Audiences Statewide
- State-Level Resources Provided to Connecticut's Neediest Districts
- High Teacher Salaries and Teacher Standards Enable Districts' Ability to Attract and Maintain High Quality Teachers

During the interviews with local educators in the ten Connecticut districts with the greatest reading improvement, several administrators and teachers referred to a second set of state-level

[17] The list of the ten districts and the criteria for their selection are presented In Table 9, p. 36.

policies that are much more recent, but that they feel are currently serving to facilitate their efforts to improve the reading proficiency of their students, particularly in the State's neediest districts. The sources of these policies include the State Board of Education, the Legislature, and the Governor, demonstrating that reading has become a common and bipartisan issue. These initiatives are too recent to explain Connecticut's reading improvement between 1992 and 1998 but they are likely to influence the current and future efforts of Connecticut's teachers to improve their reading instruction. Therefore, these policies are listed in Table 5 and further elaborated in Appendix B.

Table 5. State-Level Policies Enacted Between 1996-1999

State Board of Education Policies

- New 1999 Guidelines for Identifying Students with Learning Disabilities

State Legislature Categorical Grants to the State's Neediest Districts and Schools

- School Readiness/Preschool Grants
- Early Reading Success Grants
- Educational Accountability and Summer School Grants
- Expansion of the Number of Family Resource Center Grants

Governor's Initiatives

- Governor Rowland's Summer Reading Challenge

State-Level Policies and Practices in Place Between 1992 and 1998

The Connecticut Mastery Tests (CMTs) in Grades 4, 6, and 8 As a Catalyst for District Re-Alignment of Curriculum and Instruction

Most of the districts which had made the greatest improvement in reading identified the state tests, CMTs, as a major factor in helping them to focus their instruction. They stated that the skills assessed on the State's reading tests were important ones and, for the most part, their efforts to realign their district's curriculum and instructional practices based on the tests resulted in sound changes. In several instances, districts reported that this was the first time that their teachers could focus their teaching on an agreed-upon set of skills and receive meaningful annual feedback to chart their progress. However, personnel in the ten districts interviewed varied in the degree to which they believed that a statewide test, of any type, should be used as an accountability tool to chart the progress of schools and school districts**.**

The fourth-grade CMTs were implemented in 1985, followed by the sixth- and eighth-grade CMTs one year later. By the mid-1980s, some forty states had already implemented statewide reading tests. However, what characterizes Connecticut's testing program has been its consistency and the high level of responsiveness of its State Department of Education's to districts' testing needs over the last fifteen years. While still allowing for iterative refinement of the test objectives and specifications about every seven years, the testing program has been otherwise stable. Furthermore, the State Department of Education staff implemented procedures to meet districts' requests related to disaggregating their test data, conducting more sophisticated analyses, receiving estimated national norms, finding compatible tests to use for grades 3, 5, and 7, and receiving copies of their students' short-answer and essay responses to test items.

A Description of Connecticut 's Two Reading Tests

Connecticut uses two reading tests in each of grades 4, 6, and 8.

The Degrees of Reading Power (DRP). The DRP is a multiple-choice test that Connecticut purchases from Touchstone Applied Science Associates, Inc. (TASA) in Brewster, New York. The test requires students to read eight passages of informational prose of increasing difficulty, each between 325 and 350 words in length. At varying intervals, a word (noun, verb, adjective, or adverb) is deleted. The multiple-choice options for each deletion are located in the right-hand margin. (An example of a DRP test passage for grade 4 is presented in Appendix C.) The test provides each student with a reading score which can be matched to the difficulty level of books that a student could be expected to read.[18] TASA has printed catalogues and CD-Roms (BookLink) which contain more than 10,000 titles with readability scores that can be used by teachers to select textbooks for classroom use, or by teachers, parents and students themselves to choose suitable books for independent reading. In fact, several districts interviewed have contracted with TASA to provide personalized letters for students and their parents with some suggested books. (An example is provided in Appendix D.)

The Reading Comprehension Test. The second reading test was developed by Harcourt Brace Educational Measurement (formerly Psychological Corporation) with the help of a Connecticut Statewide Advisory Committee composed of teachers and reading and language arts specialists. As part of the process of recommending changes in the Reading Comprehension Test for the first

[18] This concept of "leveled books" has been available for use in Connecticut since 1980 when a more advanced version of this test was first used as part of the Ninth Grade Proficiency Test. During the 1990s, the use of "leveled" books, especially in the primary grades, has been gaining popularity in Connecticut as districts attempt to build fluency in reading by providing students with books calibrated closely to the student's level of reading skill. Districts also use other approaches to establish children's reading levels, including Running Records which assess students' reading by listening to them read aloud and keeping track of the number and nature of their errors. (Running Records are described in greater detail in Section 3, pp. 53)

major revision of the CMT in 1992, the statewide advisory committee reviewed the *Reading Framework for the 1992 National Assessment of Educational Progress.* Convinced of its appropriateness for Connecticut, the committee recommended adopting it as the revised set of objectives for the Second Generation of the CMT, to be administered in 1993. This test requires students to read passages of original works representing various types of literature including fiction, poetry and non-fiction varying in length from 400-800 words. Students are asked to respond to multiple-choice and open-ended questions. Furthermore, consistent with the National Assessment of Educational Progress (NAEP), Connecticut students are asked to provide evidence for different aspects of reading comprehension, indicating their initial understanding of what they read, their developing interpretations of the materials, their personal reflections and responses to the text, and finally their ability to stand apart from the text to demonstrate a critical stance. The State's former language arts consultant, Karen Costello, provides one possible explanation of Connecticut's improved NAEP scores, noting that "because of the overlap between the state and national tests, as children prepare for the Connecticut 4, 6 and 8 tests, they are also practicing the very skills that are assessed on NAEP in grades 4, 8, and 12."

Test Objectives and Sample Test Items Widely Publicized and Used

Because of the public visibility of the CMT scores, educators in the most improved districts reported looking closely at their curriculum and instruction to see the extent to which they were aligned with the CMTs and making the necessary adjustments. Many administrators and teachers mentioned the clarity and practicality of the materials disseminated by the State. Chief among these were the lists of objectives and sample items released with each new generation of the CMT. Lists were followed closely by Handbooks containing a variety of instructional strategies that can be used in classrooms. In addition, department consultants, with the help of the state's six Regional Educational Service Centers, provided statewide workshops, regional meetings, and one-on-one assistance to school districts and schools.

The State's Reporting of CMT Results in Multiple and Useful Ways

Several of the districts interviewed expressed appreciation for the ways in which scores were reported to them which permitted their own further analyses of their test data. Test results are reported to school districts by district, school, classroom, and individuals and parent reports are generated for each student. Scores are also distributed directly to the State's newspapers who typically report them as front page stories. This practice has received mixed reviews, especially by school districts who believe that too much attention is paid by both the media and the public to simplified non-diagnostic scores and comparisons among districts as opposed to the progress made and the more diagnostic implications for needed changes in curriculum and instruction.

Standards Established and Reported

In order to communicate to the various audiences (e.g., parents, teachers, principals, superintendents, newspapers) on the progress of students, the Connecticut State Board of Education established standards for each of the tests. The Department convened panels of educators and content experts to look closely at the items on the tests, and, using well-established methods of standard setting, make recommendations to the State Board of Education. The Board established two standards – a Goal Standard which represents the State's criterion for mastery of a subject and a Remedial Standard, below which a student may be in need of remedial assistance. In the first generation of the test, both standards were routinely reported to the schools and the newspaper; in the second generation of the test, partly in an attempt to raise expectations for students and schools, only the percentages of students at or above the Goal Standard were reported.

Scores for the State and Educational Reference Groups Reported

Districts find that it is not sufficient to report merely how a district or school is doing on a test. Whereas reporting percentages of students above and below goals levels helps a district to chart its growth over time, it does not provide information to answer the question, "How are we doing compared to others like us?" Therefore, districts appreciate the State's releasing information about the State as a whole as well as for similar groups of districts, the Educational Reference Groups which were described in Section 1.

Estimated National Comparisons Made Available

Many districts also want to know how they compare to others across the country. In order to provide estimated national norm-referenced data based on CMT performance on the Reading Comprehension Test, items on the CMTs were statistically linked to the seventh edition of the Metropolitan Achievement tests (MAT7). With this linkage in place, districts can estimate how their students compare with students nationally. For the Degrees of Reading Power Tests, TASA also provides a Conversion Table that can be used to translate a DRP raw score into national percentiles and normal-curve equivalents. For the majority of Connecticut districts, these national estimates eliminated the need to purchase additional tests for the purpose of making national comparisons.

Data Tapes Provided to Facilitate District- and School-Level Research

The Connecticut State Department of Education (CSDE) provides districts with their own CMT data on a disk with an easy-to-use microcomputer software package, (The Mastery Test Information System), to enable them to do their own special analyses. Considerable

resourcefulness is evident in the variety of ways that districts use their data. For example, when sixth grade students move to a middle school, several of the most improved districts disaggregate the sixth grade test scores by feeder elementary schools. Others disaggregate the data from the students in grades 4, 6, and 8 by their teachers in grades 3, 5, and 7 so that the teachers from the previous school year can see how their students performed on the CMTs. These procedures develop stronger teacher "ownership" of their students' results, which had been missing before these reports were readily available. To chart their progress, some schools analyze the results of only those students who were in the school during the previous school year. Other schools compare the results of students receiving a particular intervention or curriculum with those who are not. Some superintendents and local school boards study results disaggregated by race/ethnicity to be sure that *all groups* of students are making progress. While the State does not require any of the analyses that have been described, most districts with the greatest improvement have chosen to do them. (Program diskettes are available by accessing the CSDE web site at http://www.state.ct.us/sde.)

The State also returns copies of students' written responses to the schools as part of the data packets sent to districts. This makes it possible for districts to better understand the State's scoring standards and to look closely at the written responses of students whose scores are discrepant from those earned in class.

Summary

Due to the CMTs, there is considerable agreement among teachers, administrators and the public about which reading skills are important to teach at which grade levels. The test results are user-friendly and have accompanying software to enable district personnel to conduct further analyses as needed.

Tests Made Available to Local Districts at Grades 3, 5, and 7 to Supplement the CMTs at Grades 4, 6, and 8

Before the implementation of the CMTs, several districts had a tradition of annually testing students in every grade level. Therefore, beginning with the Second Generation CMTs in 1993, the CSDE, through its contractors, developed one form of a reading test for students in each of grades 3, 5, and 7. To ensure the consistency of these tests with the CMTs administered in grades 4, 6, and 8, statewide advisory committees worked closely with the test contractor and reviewed the items. Districts can request master copies of the 3, 5, and 7 tests from the contractor free of charge and reproduce as many copies as needed. Scoring can be done by the test contractors for a fee or locally by district personnel without contractor costs. In addition, those districts interested in monitoring the progress of their students in reading each year are able to purchase spring versions of the Degrees of Reading Power tests in grades 2-8 to compare with

their fall test results.

School Profiles Publicly Reported to Local Boards of Education and Audiences Statewide

Beginning with data from the 1991-92 school year, the Connecticut General Statutes (Sec.10-220c) requires that each local superintendent of schools report annually to the Commissioner of Education and the local board of education a strategic school profile report for each school under its jurisdiction and for the school district as a whole. As a result, annually since 1993, the Department has been producing a *Profiles of Our Schools: Condition of Education in Connecticut* report which provides data on each of the 1068 public schools in the 166 school districts in Connecticut. For each school, CMT scores are provided for a period of several years so that school personnel and the public can monitor improvement over time. Many administrators expressed the view that this highly public school-by-school reporting has had a strong impact on their instruction and student achievement. This practice was implemented in 1993, at the beginning of the period of Connecticut's demonstrated reading improvement on NAEP and was mentioned by several districts as a factor in motivating changes in their instruction in reading. (Several examples of school-level accountability practices are described at the beginning of Section 3.)

State-Level Resources Provided to Connecticut's Neediest Districts (Priority School Districts)

The disparities between the high and low achieving districts in the state (see Table 3, p. 13) have been the subject of two landmark lawsuits in Connecticut--*Horton v. Meskill* in 1977 and *Sheff v. O'Neill* in 1989. One of the results of the first lawsuit was the development of a procedure in 1984 for identifying the State's fourteen most needy school districts and their designation as Priority School Districts (PSD) accompanied by the provision of additional resources through a series of categorical grants.[19] The steady improvement of students in these school districts (see Figure 5 in Section 1, p.15) can, in part, be attributed to the infusion of financial and human resources through the Priority School Districts initiative. As can be seen in Figure 5, the gap between the poorest districts and the rest of the state on the CMTs is also beginning to close. Another indicator of the success of these categorical grants is that in using the criterion of 10 Index-Score-points growth on the CMTs to identify the districts with the greatest improvement in reading, three Priority School Districts – New Britain, Middletown, and Norwalk and one Transitional School District (the group of next-neediest towns), Groton were identified.

[19] Two factors--the number of students on free and reduced lunch and scores on the Connecticut Mastery Tests are used to identify Priority School Districts. All of the districts in ERG I and several of those in ERG H are included in this group.

Spokespeople in these districts emphasized the important contribution of these PSD funds to their reading improvement.

High Teacher Salaries and Teaching Standards Enable Districts to Attract and Maintain High Quality Teachers

Many districts spontaneously mentioned the high quality of their teachers and administrators as reasons for their growth. When there is a teaching opening in a Connecticut elementary school, there are often several hundred applicants. Furthermore, some administrators have noted that the quality of preparation of teacher candidates is continuing to improve, especially with respect to their level of familiarity with new forms technology. Improving the quality of Connecticut's teachers has been a state-policy priority since 1982 when the Citizen's Task Force on Quality Education and the Governor's Commission on Equity and Excellence in Education began looking at issues of teacher accountability, standards and compensation. Their recommendations culminated in the passage of the 1986 Educational Enhancement Act (EEA).

The EEA had two basic elements: Higher Teacher Salaries and Higher Teacher Standards. Both of these were mentioned by districts as factors in raising their level of reading instruction. According to the CSDE, the EEA committed more than $300 million to "attract and retain high-quality teaches by making teachers' starting and mid-career salaries competitive with other occupations requiring similar training, to reduce disparities in teacher salaries among the State's school districts, and enable local communities in Connecticut to command competitive positions with districts in other states in attracting and retaining high-quality teachers." (CSDE, 1990, p.1) The State also hoped to hire more teachers in its neediest districts in order to improve the teacher-pupil ratio. Within five years of the passage of the EEA, Connecticut teachers were paid the highest per diem salary in the world, $261.00 per day. (*Education in the States and Nations*, Figure 35a.)[20]

<u>The Beginning Educator Support and Training (BEST) Program</u>

Along with implementing higher salaries for beginning teachers, the State raised the standards for incoming teachers and required continual professional development for experienced teachers. It did so through the Beginning Educator Support and Training (BEST) Program, implemented in 1989 to provide a comprehensive induction program of support and assessment for beginning teachers. Prior to entering a teacher training program in Connecticut, prospective teachers must pass tests of reading, writing and mathematics. Before they can be hired in Connecticut schools, they must pass a subject knowledge test (*PRAXIS II*). The support for beginning teachers

[20] This corresponds to an annual salary of $47,510 for Connecticut teachers in 1991-92; the corresponding average annual salary for U.S. teachers was about $34,000. (Source: *Education in States and Nations: 1991*, Indicator 35.)

includes one-on-one mentoring by experienced teachers in the same school[21] and recommended attendance at a series of regionally located support seminars for new teachers and their mentors. After close to a decade of research and development by the CSDE, the State Board of Education approved in 1997 the implementation of a two-year induction program which provides support for teachers in preparing for two additional forms of assessment. The *Connecticut Competency Instrument (CCI)* is a clinical assessment by trained observers administered locally to assess generic teaching competencies within a single lesson (such as classroom management, instruction and assessments). A second instrument, *a teaching portfolio*, is submitted to the CSDE by the beginning teacher during the second year. Teachers document their planning, teaching and resulting student learning within a unit of instruction over a two-week period of time, including multiple sources of information such as videotapes of teacher-directed instruction and student-centered lessons, teacher commentaries and samples of student work. These portfolios are scored at a central location by trained teachers in the same content area or discipline as the beginning teacher. (Source: www.state.ct.us.sde)

One of the most valuable aspects of the BEST program mentioned by several districts is the effect of the program on the mentors and state-trained assessors and scorers. Because of their need to familiarize themselves with the expectations for beginning teachers and then to provide assistance to them, many of these experienced teachers have reported improvement in their own teaching. Furthermore, several districts reported that their experienced teachers learned as much from the beginning teachers in areas such as reading and technology as the new teachers have learned from them. In 1997-1998, 25.5% of the teachers in Connecticut schools had been trained as mentors, assessors, or scorers, compared with 18.4% in 1991-1992. Adding these teachers to the number of new teachers hired since the passage of the 1986 Educational Enhancement Act, almost half of Connecticut's current 44,000 teachers have participated in some part of the State's mentoring and assessment program for beginning teachers. It is expected that over the next 11 years, half of the current teachers will retire. These figures underscore the cumulative effect of the EEA and the BEST programs.

Characteristics of Connecticut's Teaching Staff and Their Relationship to Connecticut's Improved Reading Scores

National and Connecticut statistics for the period between 1991-1993, early in the period of Connecticut's improvement on NAEP, indicate that Connecticut teachers were already quite well educated and experienced.

[21] In the early 1990s mentors were paid a small stipend by the CSDE, but this is no longer true.

- In 1993-94, 82.4 % of teachers in Connecticut had Master's degrees compared with 47.3 % in the U.S. (1997, *U.S. Mini-Digest of Educational Statistic*s).
- In 1991-92, Connecticut teachers averaged 16 years of experience. Only two states (MI-17; and RI-18) and Washington, DC (19) had higher average years of experience and eight states had the same number of years as Connecticut *(Education in States and Nations*, Table 35b).

Data collected by the Connecticut State Department of Education indicate that there were no changes in either teachers' level of education or their average years of experience between 1991 and 1997. Therefore, the explanatory power of these two variables is analogous to that of the two variables, parents' income and parents' education, discussed in Section 1. *Teachers' level of education and their average years of experience can be used to explain Connecticut's high achievement at any point in time between 1992 and 1998. However, because they did not increase during the period of Connecticut's improved reading scores, they do not explain the improvement of Connecticut's students during that period.*

Direct and Indirect Measures of Instructional Time

Whereas interviews are extremely helpful in identifying policy-related variables that are likely to have affected Connecticut's high and improved reading scores, they are much less likely to identify policy-related variables that did *not* make a difference. Therefore, a separate analysis of statewide data was conducted to determine the extent to which there were changes in other variables that have been linked by research to student achievement. Three variables that research either directly or indirectly relates to achievement pertain to the average amount of instructional time available to students: *average class size, average hours of instruction per year, and average student attendance*. Because time on task has been found to be related to student achievement, data on these three variables are presented in Table 6. In the six years between 1991-1997, there were very small positive changes in these variables. For example, over this period, class size dropped by less than one student in kindergarten and Grade 2, a finding potentially relevant for students in Grade 4 who might have benefited from reductions in class size. The number of instructional hours rose by an average of 4 hours in elementary school and an average of 23 hours in middle school. The third variable, average student attendance increased in elementary school by 0.4% and in middle school by 1.1%. In elementary school, this translates into an average of almost one full day more of school per year and in middle school to 2.0 more days of instruction per year.

Table 6. Trends in Direct and Indirect Indicators of Instructional Time in Connecticut, 1991-1998

Instructional Time Indicator	1991-1992	1997-1998
Average Class Size		
Kindergarten	19.6	19.0
Grade 2	20.7	20.5
Grade 5	22.0	21.6
Grade 7	20.8	21.9
Average Hours of Instruction per year		
Elementary	967	971
Middle/Jr. High	969	992
Average Student Attendance		
Elementary School	96.2%	96.6%
Middle/High School	95.1%	96.2%

(Source: *Connecticut's Condition of Education,* 1999)

It may be helpful to put these statistics into a national perspective:

- In 1990-91, 13 states had smaller class sizes than Connecticut *(Education in States and Nations;* Figure 16).
- In 1990-91, 32 states had more hours of instruction than Connecticut *(Education in States and Nations;* Figure 35d).

Given the relative position of Connecticut to other states and the small magnitude of the changes between 1992-1998, it appears unlikely that these three instructional time indicators can explain Connecticut's improved reading achievement.

It is important to distinguish Average Hours of Instruction Per Year from time spent directly in reading instruction. It is possible that the average hours of instruction remained relatively constant, but the hours spent on reading instruction increased. As we will see in Section 3, several districts cited the increased amount of time spent in reading instruction as one of the reasons for their improved reading achievement.

Summary of Section 2

Interviews with state-level policymakers and local school personnel have provided some viable answers to *Research Question 4: What state-level policies and practices are likely to have contributed to Connecticut's improved reading scores?* The districts interviewed reported that the wide dissemination of the CMT test objectives and the increasingly user-friendly reporting mechanisms enabled them to clarify their teaching priorities in the area of reading. The visibility of

school-level results through the State's publication of its School *Profiles* has motivated several districts to make changes in their reading instruction. The provision of resources to the State's neediest districts through categorical grants has enabled these districts to enhance their reading initiatives and to begin to close the gap between their scores and those statewide. The 1986 Education Enhancement Act, with its emphasis on both higher salaries and standards, combined with the BEST mentoring program for beginning teachers have helped to staff Connecticut schools with well educated and experienced teachers. However, because Connecticut's average levels of teacher education and experience did not change during the period of the students' improvement, one needs to look beyond these teacher characteristics for explanations.

Very small changes in the amount of instructional time, class size and student attendance, suggest that these three variables contribute very little to Connecticut's high and improved reading performance. However, the pattern of preschool data between 1992-1998 indicates that the percentages of Connecticut students attending preschool is likely to be a contributing factor to Connecticut's high and improved reading achievement. Not only did Connecticut have the largest percentage of students in the U.S. attending preschool in 1991-1992, but between then and 1997-1998 this increased from 64.4% to 70.4%. Categorical grants for the Priority School Districts (described in Appendix B) will continue to provide resources to Connecticut's neediest school districts to increase the numbers of children who attend preschool programs.

It is clear that many state-level policies and practices have contributed to Connecticut's high and improved reading scores. However, the story is still incomplete. Recalling the admonition of former Commissioner Tirozzi that "Policy begins when the teacher closes the classroom door," Section 3 looks behind the classroom doors of the ten Connecticut districts who made the greatest progress in reading between 1993-1998. The following analysis of the actual organizational and instructional policies and practices that were implemented in these schools and classrooms is intended to provide a more complete understanding of Connecticut's high and improved reading achievement.

SECTION 3

Local District Policies and Practices to Support Reading Improvement

Interviews were conducted with educators in the ten Connecticut school districts whose students had made the greatest improvement between 1992 and 1998. When asked why their reading scores had improved so dramatically, collectively, they identified two sets of factors composed of organizational and instructional policies and practices. (See Table 7.)

Table 7. Organizational and Instructional Policies and Practices in Connecticut School Districts Making the Greatest Improvement in Reading

ORGANIZATIONAL POLICIES & PRACTICES AT THE DISTRICT & SCHOOL LEVEL

- Active Local School Board Support
- Creating Strong Ownership and Accountability Mechanisms in Every School
- Linking Teacher Evaluation to Student Achievement
- Providing Professional Development Opportunities for Administrators and Teachers to Learn the Skills Required to Improve Students' Reading
- Involving Parents in the Work of the Schools
- Continuous Monitoring of Student Achievement
- Increasing the Amount of Time Available for Reading Instruction

INSTRUCTIONAL POLICIES & PRACTICES USED INSIDE THE CLASSROOMS

- Teachers emphasize phonemic awareness in kindergarten and first grade.
- Teachers use a wide variety of reading materials to address different instructional needs within the same classrooms.
- Teachers and administrators describe their reading program as "balanced" between word analysis skills and comprehension strategies.
- Teachers reinforce reading skills on a daily basis through writing.
- Teachers use systematic spelling programs to help teach and/or reinforce the regularities (and irregularities) of the English language.
- Teachers use on-going assessment of students' reading proficiency.
- Teachers identify children with delayed reading development early and provide intensive interventions for them by the end of first grade.
- Teachers use a variety of intervention strategies and experts to accelerate the development of delayed readers.

Who Was Interviewed

Using the CMT reading tests in grades 4, 6, and 8, eighteen districts were identified who made at least ten Index-Points gain in two or more grade levels. Eight of these districts enrolled fewer than 100 students in a grade level. The ten districts with a hundred or more students in a grade-level cohort were interviewed. Table 9 contains the districts' names, educational reference groups, and CMT Index Scores for 1993 and 1998, showing the amount of growth made. It is significant that these districts represent a wide range of ERGs, from the State's wealthy districts such as Greenwich and Monroe (ERG B) to its poorest districts. New Britain (ERG I), Middletown (ERG H), and Norwalk (ERG H) are among Connecticut's neediest districts based on their percentages of students eligible for free lunch programs and their CMT scores; another district, Groton (ERG F), is considered a "Transitional Schools District," i.e., Connecticut's next most needy group of districts based on the same two criteria.

It is also interesting to note that there is a wide geographic spread of the districts that have made the greatest improvement in reading between 1992-1998. Figure 9 shows the eighteen towns that met the first criterion, i.e., 10 index-points growth on two or more grades on the CMT reading tests. The darker shaded districts were those interviewed; they also met criterion 2, having enrollments of greater than 100 students in a grade level. The lighter shaded districts met criterion 1 only and were not interviewed.

An analysis of socioeconomic changes in these ten districts during the period of their achievement gains suggests that their reading growth is neither due to their increasing wealth nor their out-migration of typically low-scoring students. Table 8 illustrates the stability of their percentages of students receiving free or reduced lunches, coming from non-English-speaking homes, and belonging to a minority group.

Table 8. Trends in Socioeconomic and Demographic Characteristics of Connecticut's Ten Most Improved Districts Interviewed, 1992-1998

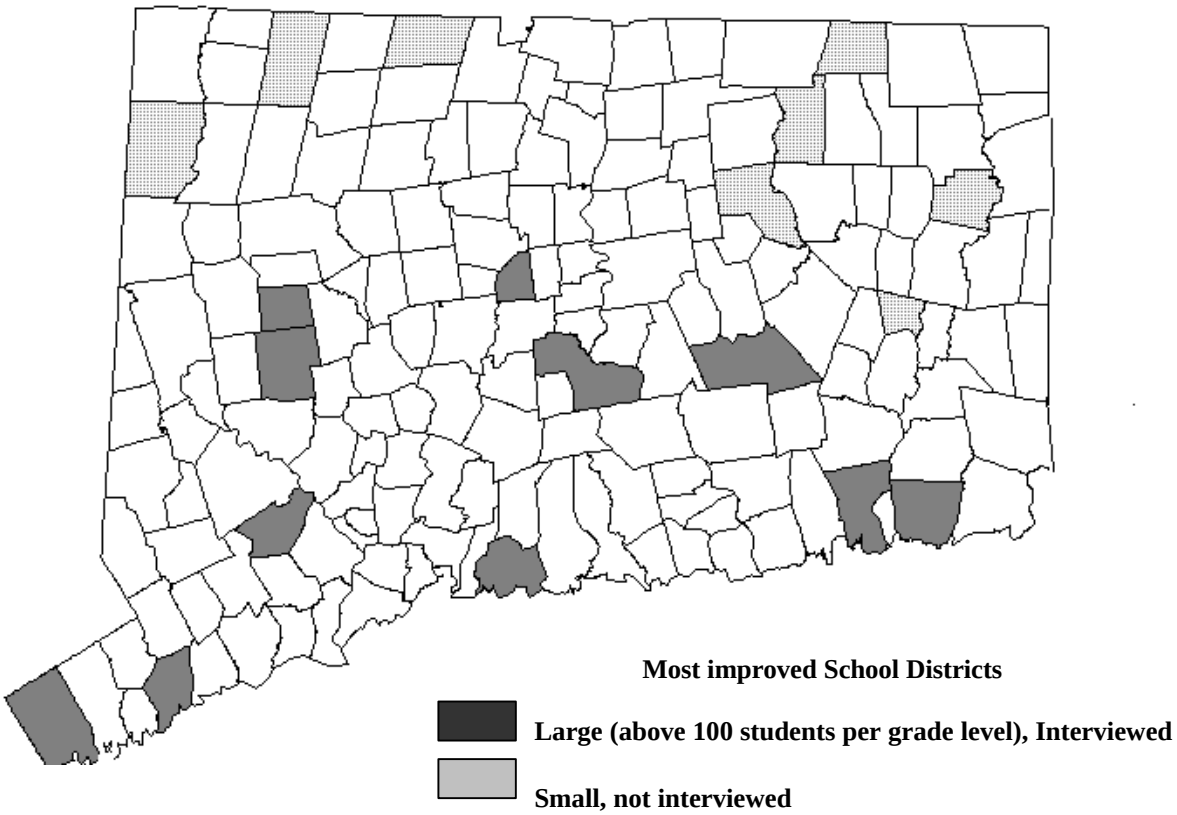
	% Free/Reduced Lunch		% Non-English Home		% Minority	
	1997	1992	1997	1992	1997	1992
AVERAGE of TEN DISTRICTS INTERVIEWED	17.2	16.7	11.6	10.8	22.3	20.14

Table 9. Trends in CMT Reading Index Scores in Grades 4, 6, and 8 for the State and the Ten Most Improved Connecticut Districts Interviewed, 1993-1998 [*]

District	Educational Reference Group (ERG)	Grade Level Tested	1993 CMT Index Score	1998 CMT Index Score	Improvement in CMT Reading Score
STATE AVERAGES		Grade 4	56.9	65.5	+ 8.6
		Grade 6	68.0	74.2	+ 6.2
		Grade 8	69.9	75.5	+ 5.6
Greenwich	B	Grade 4	70.5	83.9	+13.4
		Grade 6	75.2	86.2	+11.0
		Grade 8	75.4	90.3	+14.9
Monroe	B	Grade 4	71.0	84.6	+13.6
		Grade 6	77.6	88.3	+10.7
		Grade 8	80.8	90.0	+ 9.2
Region 14	C	Grade 4	68.6	80.9	+12.3
		Grade 6	86.8	81.9	- 4.9
		Grade 8	76.4	91.5	+15.1
Branford	D	Grade 4	67.1	77.7	+10.6
		Grade 6	77.3	85.8	+ 8.5
		Grade 8	75.6	87.2	+11.6
Colchester	D	Grade 4	63.1	77.7	+14.6
		Grade 6	75.0	89.3	+14.3
		Grade 8	69.4	80.7	+11.3
Groton	F	Grade 4	49.9	69.2	+19.3
		Grade 6	64.8	74.6	+ 9.8
		Grade 8	59.4	74.8	+15.4
Waterford	F	Grade 4	60.5	74.8	+14.3
		Grade 6	75.5	87.0	+11.5
		Grade 8	73.0	83.1	+10.1
Middletown	H	Grade 4	51.8	65.7	+13.9
		Grade 6	67.0	74.2	+ 7.2
		Grade 8	64.7	75.6	+10.9
Norwalk	H	Grade 4	46.6	58.6	+12.0
		Grade 6	55.3	62.7	+ 7.4
		Grade 8	53.8	66.4	+12.6
New Britain	I	Grade 4	36.3	47.4	+11.1
		Grade 6	35.0	45.6	+10.6
		Grade 8	38.5	52.3	+13.8

[*] Interview Selection Criteria were: (1) Districts that made at least 10 Index-Points Growth between 1993-1998 on the *Degrees of Reading Power* section of the Connecticut Mastery Test at two or more grade levels (Grades 4, 6, and 8); and (2) Districts with at least 100 students enrolled in each grade level. Eight districts met the first criterion, but not the second and were not interviewed because their smaller-sized cohorts made longitudinal differences harder to interpret. They were: ERG C: Willington; ERG E: Brooklyn, Coventry, Hartland, Norfolk, Sharon, and Union; and ERG G: Sprague.

Figure 9. The Geographic Distribution of the Eighteen Connecticut School Districts with the Greatest Improvement on the Connecticut Mastery Tests in Reading, 1993-1998



Three factors which describe the ten districts with the greatest improvement in reading scores on the CMT – (1) their wide socioeconomic range, (2) their broad geographic distribution, and (3) their socioeconomic and demographic stability – indicate that improvement in reading achievement is possible in virtually any district. The districts' heterogeneity amidst high improvement suggests that a combination of strong educational policies and sound instructional practices can diminish the strength of the correlation that generally exists between students' achievement levels and their parents' income and education levels. This section will describe both the organizational practices and the in-class reading strategies reported to be effective by these districts.

Organizational Policies and Practices in the Connecticut School Districts Making the Greatest Improvement in Reading

Seven organizational factors were identified by the districts interviewed as being related to their improvement in reading.

Active Local School Board Support

"Without a supportive school board, the superintendent can't do a thing," said George Reilly, recently retired superintendent of Groton. "Our Board put curriculum first, by setting up a sub-committee to approve the curriculum in each area. The Board also served as 'cheerleaders' for the teachers and administrators who felt that the Board was behind them." However, an administrator from one Groton school pointed out that because the Board wants to see a 5-percent increase in CMT scores every year, the teachers feel a lot of stress. David Title, the current superintendent of Waterford also described the importance of his Board: "Our Board set high goals in 1995; this sent a message to everyone." In Greenwich, John Whritner worked with the administrators and the Board of Education to set goals for the CMT. Growth goals were added a year later. As one central office administrator noted, "Everyone knew what the goals were, and each staff member knew he [or she] was to work toward those goals."

Creating Strong Ownership and Accountability Mechanisms in Every School

The Norwalk superintendent regularly brought the 6th grade CMT scores back to each of the principals of the feeder elementary schools, disaggregated by fifth-grade teacher and also by race, and asked, "What are you going to do to improve?" In Groton, School-Improvement Teams were elected in each school by parents, teachers, and students. These Teams were given considerable decision-making authority in such important matters as hiring administrators. The superintendent promised to select his final candidates from the Team's recommended list. The New Britain superintendent established four "Most Outstanding School Awards" for the schools with the greatest increase in CMT scores, highest student attendance, highest teacher attendance, and greatest parent involvement. Interviews with both central office personnel and teachers in many districts identified that principals in many schools had become instructional leaders. Examples which provide evidence for their leadership and support are presented throughout this section.

Linking Teacher Evaluation to Student Achievement.

Three times a year, James Rhinesmith, New Britain's superintendent, met with representatives of each of his fifteen schools to discuss the development and progress of their School Enhancement Plans. The CMT data were used to set specific achievement targets in a strategic plan. To make it possible for all the teachers to understand their contributions to the school's success, the fourth-grade CMT scores were disaggregated and sent back to each child's second- and third-grade teachers. Teachers set CMT goals for their students based on their school's improvement plan and its priorities, their students' areas of weakness, and reasonable expectations based on past performance. "It took five years to happen, but by 1998, all teachers had developed individual growth plans for themselves that were tied to their students' achievement," said Superintendent

Rhinesmith. Teacher evaluation for both tenured and non-tenured faculty is now tied to those goals.

In Region 14, which subscribes to a data-driven "Total Quality Management" process, every school has a Quality Improvement Team. The quality indicators of success are the CMT results. Teachers, in consultation with their principals, develop goals for themselves that are consistent with those of their school. "In order for teachers to attend a conference, it has to be tied to the teacher's goals," said Mary Henderson, the former Director of Curriculum.

Providing Professional Development Opportunities for Administrators and Teachers to Learn the Skills Required to Improve Students' Reading

Administrators report that you cannot merely demand high performance. If teachers are expected to teach differently, they must have opportunities to develop new skills and strategies. Consequently, several of the districts interviewed invest heavily in ongoing professional development. For example, Middletown has developed two very strong instructional leaders in language arts and mathematics. These individuals help their colleagues by producing optional calendars and sample lesson plans which map the skills on the CMTs to the curriculum materials available to teachers. Virtually all of the staff development is provided by strong in-house staff or external consultants who make a commitment to both demonstrate lessons and provide sustained follow-up coaching. Greenwich has modified the role of its reading teachers who spend 50% of their time working directly with students and 50% working with teachers in a consulting role, doing demonstration lessons and modeling ways to work with struggling readers, etc. Similarly, Norwalk has a teacher trainer in every school and New Britain teachers team up with colleagues in Farmington through an inter-district grant from the Connecticut State Department of Education to attend a twenty-day intensive literacy workshop held in a summer school for the most-at-risk readers. There, teachers can observe, analyze, and practice successful teaching strategies with students.

Groton believes in the synergy and learning that occurs when experts of different types solve problems together. In each school, there is a team composed of teachers, reading specialists, the school nurse, the school psychologist, each of whom receives special problem-solving training. Any teacher in the school can bring a difficult classroom case to the attention of the team. After listening to the presentation of the problem, the different members of the team think silently for two minutes and then write their suggestions on Post-its for the presenting teacher to review. After considering the possible strategies, the teacher may choose a solution and commit to trying it out and bringing data back to the team.

Involving Parents in the Work of the Schools

There are many ways in which the successful districts interviewed have involved parents in improving the reading of their own children and other children. In addition to participating on site-based management teams, these include joining Parent-Teacher groups, visiting Family Resource Centers, and improving their own literacy education through preparation for the General Education Diploma (GED) or other adult-education preparation programs,

Second, educators interviewed said that perhaps as important as any other school-based activities is the support and encouragement that parents can provide by reading to their children and working with them at home. Waterford facilitates this by offering Parent Nights to explain the CMTs to parents. New Britain hires a paid parent organizer in each school to encourage parents to volunteer in the schools and keep track of monthly parent involvement as schools compete for the district's award for the highest percentage of volunteers. The city also offers training to parents through a program called *First Steps* which teaches pre-reading and reading skills. The Parent Activity Reports for the fifteen New Britain schools (serving a total of 9,654 students) aggregated for the 1998-99 school year reflects the seriousness of the district's commitment. For each child in the New Britain schools last year, parents averaged two volunteer visits and four hours of volunteer time. Partly as a result of the district's strong commitment to involving parents in the education of their children, 100% of New Britain's parents attend parent conferences in elementary school. This drops to 65% in middle school and less than 50% in high school.

Continuously Monitoring Student Achievement

Some districts monitor students' reading on special tests made available by the Connecticut State Department of Education for grades 3, 5, and 7. As described in Section 2 of this report (see p. 27), to supplement the statewide CMTs at grades 4, 6, and 8 and make it easier for districts to have a unified set of tests, the Department collaborated with the two testing contractors to develop CMT tests that were made available to schools on a voluntary basis (at no cost to Connecticut public school students) for grades 3, 5, and 7. Versions of the Degrees of Reading Power (DRP) Tests were also available for purchase in grades 2 through 8 for those districts wanting to add spring testing. In 1998, the CSDE conducted a survey of District Testing Practices in Connecticut to find out what tests had been used during the 1996-1997 school year. Based on the data in that report, supplemented by the interviews conducted for this study, it was learned that seven of the ten most improved districts administer both the CMTs and the DRPs in grades 3, 5, and 7.[22]

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[1]The other three districts' testing policies were as follows: Monroe uses the DRP only; Middletown uses the CMTs only; and Colchester does not use any of these tests.

Increasing the Amount of Time Available for Reading Instruction

Districts used several approaches to increase the amount of instructional time for reading available to students both during the school day and during the summers.

More Reading Instruction in School

Waterford and Norwalk doubled the number of minutes of Language Arts for middle school students. For its sixth-grade students, Norwalk added a 45-minute class in non-fiction reading and writing to its existing literature class of 45 minutes. Students read a variety of types of non-fiction materials and were taught to formulate balanced and informative expository and persuasive written responses. According to Dr. Mary-Alice Fitzgerald, Norwalk Supervisor of Language Arts, the pilot year provided promising trends in off-year CMT reading and writing data. In both middle schools, the average writing scores rose one point (on a 12-point scale) and the percentages of students meeting the statewide goal in writing increased by 20 points. In one school, the percentage of students meeting the statewide goal in reading increased by five points and in the other school by 10 points. However, neither the overall average CMT reading scores, nor the reading scores of the lowest performing students improved significantly. In an effort to bring the lowest performing students closer to grade level performance, Dr. Fitzgerald recommends that the teachers use reading materials that are better matched to the reading level of the students, a prevalent practice in several of the districts interviewed.

Waterford also extended its in-school instructional time by holding focused tutorial groups after school and during "Flex-time" so that students weak in similar CMT areas could receive extra help.

Several districts interviewed noted that having a full-day kindergarten allows more time for language development and phonemic-awareness training with the children. Therefore, in 1998, New Britain implemented 10 new full-day kindergarten classes by using $815,300, or 77% of its Early Reading Success Grant. This decision was based, in part, on the fact that New Britain's percentage of students attending preschool was persistently the lowest in the state. Between 1992-1993 and 1997-1998 there was no change in New Britain's 38% of students attending preschool, while the statewide averages grew from 64% to 70% during the same period.

More Reading and Reading Instruction During the Summer

Several districts encourage their students to read during the summer. In a Title I elementary school in Greenwich, teachers noticed that during the school year, from fall to spring, students increase their DRP scores by an average of 17 points. However, from spring to fall, their scores drop by 11 points. To reverse the summer dip, teachers developed a summer reading packet. Teachers mail books to children and ask them to react to the books they read on postcards which

they mail back to their teachers. The postcard asks them to complete a sentence like, "The thing I really liked about the book is.....". In addition, the Media Center is open four days a week during the summer where reading groups are held. Teachers encourage the children who need extra help in reading to attend these groups.

Waterford, New Britain and Middletown provide more structured programs in the summer, on weekends, and during vacation periods. Waterford runs its own summer school and Saturday Academies which are aligned with the CMT objectives. Through an Inter-district Cooperative Grant, Waterford enables its delayed readers to attend regional Saturday and Vacation Academies with students in other districts. New Britain offers a summer school program for its incoming kindergarten children and delayed readers in grades one and two. Similarly, Middletown runs a two-week summer session for approximately 160 delayed readers in which the 14 participating teachers also pilot some new instructional strategies and newly purchased curriculum materials.[23]

Summary of Organizational and Contextual Factors in Connecticut School Districts Making the Greatest Improvement

The seven factors described in this section help to answer the fifth research question: *What district-level policies and practices are likely to have contributed to the improved reading scores in those districts with the greatest gains?* What characterizes the majority of the districts with the greatest improvement in reading scores was the collective ownership of reading instruction as a district priority. Local school boards, superintendent of schools, principals, classroom teachers, and specialists knew what they were trying to accomplish and helped one another to achieve that end. The more successful schools functioned as well-organized systems, with each teacher using CMT feedback for his or her own students to make alterations in materials, strategies and curricular emphasis. Principals and teachers felt responsible for improving their students' reading skills. Where necessary, they marshaled parents and other specialists to help them and when possible, they increased the amount of in-school and out-of-school reading time. Not all districts interviewed chose to highlight these contextual factors in explaining their reading improvement; others focused instead on some of the more specific instructional changes described in the next section.

Practices Used Inside the Classrooms of Connecticut Districts Making the Greatest Progress in Reading

In lieu of a single ideological approach, eclecticism and pragmatism best characterize the instructional practices and reading materials being used in the ten most improved Connecticut districts. Every district spoke of the "balance" it aimed to achieve between teaching students the

[23] New legislation designed to provide delayed readers with summer school opportunities is described in Appendix B.

skills to decode new words and deriving understanding from engaging literature and nonfiction texts. In several of these districts, there seemed to be a genuine commitment to a dual focus on early listening comprehension and explicit phonemic awareness and decoding skills. They also described the balance between reading and writing. In the most improved school districts, classroom teachers, reading specialists, speech and language pathologists, and special education teachers with different beliefs and training all share the same copy machines and teachers' lounges and discuss what works best with their students. Undergirding the wide variety of materials and strategies used in these ten districts were eight common features, six of which were used for all children and two of which were used for children with delayed reading development.

Instructional Practices Used with All Children

1. Teachers emphasize phonemic awareness in kindergarten and first grade.[24]

Phonemic awareness is the understanding that a spoken *word* is composed of a sequence of phonemes. It is demonstrated by the ability to identify and manipulate the sounds within spoken words or to recognize common segments across words. The experience of the Branford School District will serve as an exemplar because its phonemic awareness program is well articulated, its goals are clearly specified, and its track record is well documented. Branford's phonemic awareness program was developed five years ago to assist children in developing pre-readiness skills needed for learning to read. According to Linda Chipkin, a speech and language pathologist, this was necessary because close to 25% of the children come to school without the necessary skills to begin a formal reading program.[25] A team consisting of kindergarten, reading and Special Education teachers and speech/language specialists, developed a sequenced,

[24] Through interviews with reading specialists in Branford, Monroe, and Greenwich, it became clear that much of the commitment to phonemic awareness in Connecticut schools can be traced to two factors. The first is that Connecticut is home to one of the world's leading research facilities on the linguistic basis of reading- Haskins Laboratories, a research affiliate of both the University of Connecticut and Yale University- which has received funds from NICHD since 1965 to study reading acquisition and reading disabilities (see Shankweiler, 1999 for a review of Haskins' research). The implications of the Laboratory's research have been made available to Connecticut teachers and administrators as well as to the international research community. The second is that some of the seminal phonemic awareness research in the United States was conducted more that 25 years ago by Isabelle Y. Liberman, a former professor of educational psychology at the University of Connecticut. Professor Liberman's students have played important roles in teacher-preparation programs and research institutions. In addition, and directly pertinent to the growth of Connecticut's students in reading, they have attained supervisory positions in some of the State's school districts- both in the regular and special education programs- and in those roles have developed and implemented strong kindergarten programs to teach phonemic awareness followed by the explicit relationships between spoken sounds and alphabetical symbols. Consequently, by 1993, through these channels, phonemic awareness had found its way into many Connecticut schools (1999, Anne Fowler, personal communication).

[25] An approach to teaching phonological skills, *Sound Foundation Program*, developed by Ellen Abrams, a speech and language pathologist in Middletown has also been used for two years in a Special Needs Integrated Preschool Program in Branford. To the extent that districts increase the availability of both preschool opportunities and full-day kindergarten programs, they will have more time available to develop phonemic awareness skills prior to first grade.

phonological awareness curriculum for kindergarten along with appropriate curriculum-based assessment. The team believed that these phonemic skills should be incorporated within the general curriculum for all children as well as making them available through intensive small-group instruction for those children having difficulty with decoding skills (Chipkin and Mason, 1999).[26]

Phonemic awareness was also coordinated with letter identification using a multi-sensory approach (e.g., in which students practice writing letters in the air with their fingers or manipulate movable tiles in motivating game-like learning sessions). In addition, the team also emphasized developing comprehension skills, so appropriate literature for building children's oral language skills and critical thinking skills is incorporated in the curriculum. Branford's six desired student outcomes, presented in Table 10, reflect these mutually compatible phonological goals (outcomes 1-5) and comprehension goals (outcome 6).

Table 10. Desired Outcomes for Branford School District's Early Language and Phonological Awareness Program

Branford Early Language and Phonological Awareness Program
Students will be able to perform the following phonological awareness tasks in class group instruction with generalization to appropriate reading materials:
1. Rhyme appropriately given an oral model.
2. Appropriately segment sentences into words, words into syllables, and syllables into sounds (i.e., phonemes).
3. Blend separate sounds presented auditorially into meaningful words.
4. Substitute and delete phonemes in all positions of words.
5. Identify the sounds of the English language and associate the appropriate symbols.
Students will be able to perform the following comprehension tasks:
6. Answer **"wh"** questions [what, where, when, why], predict, understand cause and effect, and make inferences during exposure to appropriate literature.

[26] The source of the Branford description is a draft of a submission to the *Successful School Practices Resource Directory* prepared by Linda Chipkin and Susan Mason of the Sliney School, Branford, (1999). Members of the Phonemic Awareness Development Team attended workshops by researchers at Haskins Laboratories in New Haven (e.g., Hyla Rubin, Susan Brady, and Anne Fowler) and the Connecticut State Department of Education (Susan Kennedy) and read NICHD research and current periodicals.

In Branford, teachers assessed each kindergarten student's progress on the six outcomes listed in Table 10 by using a curriculum-based phonological skills instrument devised by the team at Sliney School. According to Chipkin, at the end of kindergarten, generally, about 75% of the children have mastered the required phonological skills and are able to move successfully into a first-grade literature-based reading series.

The other 25% might not have acquired the necessary pre-reading skills for a variety of reasons-e.g., attention problems, some temporary hearing loss from fluctuating middle ear problems, or not having had much exposure to books and games that promote phonemic awareness before coming to school. In first grade, these children need more intensive help through skill groups, literacy aides and when necessary, other specialists. This group of children learns its phonemic skills in a highly systematic way and practices them by using decodable books (e.g., Steck-Vaughn Phonics Series, Wright PM, etc.). As a result, Chipkin pointed out, "Students are able to experience success in holding a book, reading text from left to right, turning pages from the beginning to the end of the book, seeing how the story progresses from chapter to chapter and feeling a sense of closure from reading a complete book." [27] As in kindergarten, these children are also exposed to engaging literature (such as Eric Carle's "*The Very Hungry Caterpillar*" and "*Firefly*").

Another technique used to help children in Branford with their phonological skills is "Earobics," a computer program by Cognitive Concepts, which teaches phonemic awareness directly and allows the teacher to maintain records on each student's progress.

In Branford's Tisko School, second-grade teacher Rita Hennessey and school principal Mark Rabinowitz have developed a word-family approach as the basis for developing a systematic program for their second grade children to learn to use 101 word building units to spell, read and write single-syllable and multi-syllable words (e.g., "an" in c<u>an,</u> sp<u>an</u>, c<u>an</u>dle, understand).

Direct instruction in phonemic awareness and phonological skills for all children in kindergarten and those who need it in first and second grade was specifically mentioned by more that half of the districts interviewed – and was prevalent across the full range of Educational Reference Groups.

[27] If a child continues to have difficulty and is referred to the Student Assistance Team,, a more comprehensive evaluation like the *Phonological Awareness Test* (Robertson & Salter, 1995) or Profile (Lingui Systems) is used. This test yields five measures of phonemic awareness (segmentation of phonemes, phoneme isolation, phoneme deletion, phoneme substitution, and phoneme blending) and a measure of sensitivity to rhyme.

2. Teachers use a wide variety of reading materials to address different instructional needs within the same classroom.

Teachers in all ten of Connecticut's most improved districts use a wide array of both fiction and non-fiction materials. Although four kinds of books were described by the districts interviewed, there are some noticeable overlapping characteristics between these categories.

- *Authentic children's literature* is read aloud for the children's enjoyment and to enhance their motivation to read. In addition to developing children's vocabulary, background knowledge, and concepts, it helps their general language comprehension and their understanding of the syntax of the written language.

- *Predictable, patterned book*s are also read aloud for the children's enjoyment and enhancing their motivation. They also help to develop children's phonemic awareness and prediction skills. These books often rely on the syntactic and/or schematic redundancy in the language (e.g., I like dogs. I like cats. I like .....). The vocabulary is not controlled according to a phonological sequence (i.e., the structure of the language at a sound-to-symbol level) but rather at a usage level (e.g., in the example above, "I like" is repeated and the rest of the words, dogs, cats, etc., do not follow any kind of sound/symbol pattern). Sometimes, these predictable books are based on combinations of alliteration and rhyme (e.g., "Each peach pear plum, I spy Tom Thumb" (Janet and Allan Ahlberg) and many Dr. Seuss books.) *The Very Hungry Caterpillar* and *Brown Bear, Brown Bear, What Do You See?* represent popular examples of predictable text.

- *Decodable texts* are composed of the decodable patterns (i.e., letter/sound associations) within the student's repertoire and of high frequency function words required to read the words in the text. These materials have also been referred to as phonetically-controlled reading materials. The critical aspect of decodable text is that the vocabulary is comprised of only the elements that the student has learned and therefore affords focused practice with the orthographic patterns under study. For example, following instruction in several single consonants and blends, long and short vowels a, e, and o, the suffixes "s" and "ed", and the high frequency words ("want," "to," "the," "one," and "was," "He," "his,") students should be able to read "Wendell Gets a Pet" (presented in Table 11, p. 46).

Decodable texts were specifically mentioned by Branford, Greenwich, Monroe and Norwalk who used them to provide practice for children when learning new groups of letters and their corresponding sounds. They were most frequently included when describing their approach to teaching word-analysis skills.

Table 11. An Example of Decodable Text

Wendell Gets a Pet*

Wendell wanted a pet.
He got his net and went to the pond.
Frogs swam in the pond.
One frog was on a pad.
Wendell grabbed his net.
He stepped on the log to get next to the frog.

**Collections for Young Scholars* by Adams, et al. (1995) *Open Court* (SRA/McGraw-Hill)

- *Leveled books* – both fiction and nonfiction – are used to develop fluency and confidence in children. Teachers try to match each reader with a book that he or she can read independently with ease – recognizing or readily decoding approximately 95% of the words. Once the child is fluent in that book, the child moves on to the next level. The lowest level books are quite easy – with small amounts of print on a page surrounded by many pictures. (At the lower levels, predictable patterns can be a central feature.) As children are able to read books at higher levels, they find more print, more complex sentences and fewer contextual clues. The "leveling" can be done either by a publisher or by groups of teachers who learn the principles of what makes one book easier for children than another. (Series of leveled book found in several Connecticut districts are published by Literacy 2000, Rigby, and Wright. Teachers also supplement these books with lists of "leveled" books available from Ohio State University.)

Many of the districts interviewed (including Norwalk and Greenwich) mentioned their use of subject area nonfiction texts, stimulated in part by a desire to prepare their

students for the CMT Degrees of Reading Power Test, which is based entirely on extended nonfiction passages.[28]

Authentic, predictable, and leveled books are used universally in the districts interviewed. Every district, in addition, reported using a literature-based curriculum and/or leveled trade books.

3. Teachers and administrators described their reading program as "balanced" between word analysis skills and comprehension strategies.

By "balanced," Connecticut educators mean that their program includes the development of both specific word analysis skills and comprehension strategies. Beginning as early as kindergarten, teachers help children to derive meaning from children's literature and nonfiction books. They ask literal, interpretive and evaluative questions and encourage children to make connections between the books they listen to or read and the children's own experiences. In a third-grade classroom at Hamilton Avenue School, a Title I school in Greenwich, a poster on the wall (reproduced in Table 12) reminds children to choose different types of responses for their Reading Logs while doing their independent reading at home each night.

Table 12. Suggestions for Reading Log Entries in a Greenwich Classroom

Suggestions for Reading Log
1. *Predict.* I just read the _____. I think that _____ is going to happen.
2. *Question.* I wonder _____
3. *Make a personal connection.* Part of the book reminded me of _____
4. *Make comparisons.* This book reminds me of _____
5. *React.* I like/dislike the part when the author _____
6. *Interpret/Explain.* I don't know if it means, but I think it means _____
7. *Comment/Evaluate Author's Technique.* I like the way the author writes because _____

[28] Several districts, including Middletown, Monroe, Norwalk, and Waterford also are using cloze-like passages, i.e., passages with words left blank (e.g., Steck-Vaughn Berrent's *Comprehension Through Cloze*) to help prepare their students for the format of the Degrees of Reading Power tests. Some teachers encourage their children to read each passage carefully and for each blank space, select the best word from a choice of several words. To encourage close and critical reading, some teachers ask their students to underline, in the passage itself, the evidence for their word choice.

According to the interviews, schools vary greatly in the degree to which phonological skills are presented systematically and sequentially, in contrast to being taught on a more individualistic need-based or opportunistic basis. According to several of the reading specialists interviewed who follow a strong phonemic awareness program, some, but not all, children need to have a systematic and explicit approach to learning these skills. Yet, most of these specialists still encourage that all children be exposed to phonemic segmentation skills in kindergarten for developing decoding skills.

The most effective reading programs balance both word-analysis skills and comprehension skills, and the children who need explicit instruction receive it. The Greenwich program is an exemplar. Greenwich, like Branford, has recognized that children vary in how easily they learn the phonological structure of the language. The more facile the learner, the more easily he or she will grasp the code for reading and spelling through the experience of reading, an implicit instructional approach. Conversely, the less linguistically adept the learner, the more difficulty the student will have mastering the code, thus requiring a more explicit approach to instruction. In order to accommodate these differences, following a strong phonemic awareness program in kindergarten, Greenwich uses two reading approaches for students in grades one and two.[29] Both programs expose children to a wide variety of engaging literature through oral reading and discussions. However, they differ in whether they embed the phonics within the literature or teach it more explicitly. One particularly helpful screening task, *An Invented Spelling Test* (Rubin and Eberhardt, 1996), assists teachers in placing students in appropriate first-grade reading groups which use one of the two programs described below.

The first program is based on the Reading/Language Arts Scope and Sequence which is organized around developmental Bands. As a student demonstrates mastery of the goals and objectives in a particular Band, he or she advances to the next.. Teachers use a literature passage to identify a phonics skill that is illustrated within the passage. The teachers teach the skill and then reinforce it with the literature passage so that the lesson moves from the whole passage to a part which includes the skill and then back to the whole passage.[30]

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[29] Reading Recovery® is also available for the lowest achievers in first grade. This program is described later in this section, on p. 55

[30] In fall, 1999-2000, Greenwich is implementing a newer program, *Focus on Phonics,* in all Greenwich Schools as part of a teacher-developed curriculum that is also centered on a literature-based anthology. Based on the work of Wendy Cheyney, an author of books on embedded phonics, this program can work well with intuitive learners who have grasped the structure of the English language.

Project Read, used in Greenwich for more than a decade, is an explicit code-based approach. It is highly structured in terms of the scope and sequence of the sound/symbol, syllable and other language structures that are necessary for students to learn to read, spell, and write. Teachers use this approach with students who show weakness on kindergarten screening tests of phonological analysis at the level of phonemic awareness and letter naming. Many Greenwich teachers believe that students with these weaknesses need an explicit instructional program which includes both a direct instructional approach and opportunities to read decodable text. Such texts enable students to practice reading stories that apply the new sounds with those they already know.

New Britain switched during the 1990s from a basal to a literature-based anthology, with a structured scope and sequence which includes phonics. Because of their high inter-school mobility rate, they also decided to use a standardized book in all schools. Because the anthology is several years old, and because New Britain teachers want to include more phonics teaching, the publisher of their anthology has provided their first- and second-grade teachers with teacher manuals for the newest edition of their anthology series which contains more phonics than the older version that New Britain purchased. New Britain and Norwalk also use *First Steps* (1989), an Australian developmental curriculum that helps teachers to identify where on the literacy continuum a child is performing and then select the most appropriate teaching strategy.

Three districts, Greenwich, Groton, and Waterford use Computer Curriculum Corporation (CCC) educational software to reinforce reading comprehension and word-attack skills.

4. Teachers reinforce reading skills on a daily basis through writing.

In every school district interviewed, reading is integrated with writing. As early as kindergarten, children are encouraged to write about the stories that are read aloud in class. Their earliest writing may involve drawing a picture and "explaining" it in a sentence or using their imagination to write a new ending to a story. Through frequent writing, students practice encoding (representing sounds with print). The children's "invented spelling" (i.e., young children spell words they way they sound) serves as a window into the way in which children "hear" the phonemes (i.e., sounds) in the words they write. Teachers with training in phoneme awareness understand how much information is provided in the children's writing and how they can use it to diagnose the children's level of phonological proficiency, especially phoneme awareness, and to design individualized and constructive feedback for children.

As children move through the grade levels, they continue to write frequently. The CMT Writing Test has been an important stimulus for both the kinds of writing emphasized and the way in

which it is assessed in classrooms.[31] Several districts interviewed noted that they regularly send a team of teachers to attend the statewide workshops held each spring where the writing topic for each grade level and scored sample papers from the prior test are explained and released for districts to use. These sample papers help both teachers and students to internalize the State's standards and expectations for effective writing. Several of the people interviewed also mentioned that they found it helpful to be able to refer to the copies of their students' actual writing samples which are now returned to districts with their test results.

5. Teachers use systematic spelling programs to help teach and/or reinforce the regularities (and irregularities) of the English language.

These ten districts are using several systematic programs designed to help children move from invented spelling to conventional spelling. Due to the reciprocal nature of encoding and decoding, direct instruction in spelling helps to improve both reading and writing. In some cases, the spelling program helps the less intuitive "code-breakers" to figure out the regularities of the language. *Cast-a-Spell* was developed by a teacher, Deane Fontenault, and a school psychologist, Norma Salter, who had worked together in Colchester for 25 years. A newspaper in the Norwich area described the program:

> "Students say the words as they spell them, break the words down into syllables and then spell the words out loud together after they have each spelled them on a small tablet each student has at his or her desk... Children learn the intonation of words and the "rules" of certain words that are more difficult to learn." The Day, February 17, 1999.

Cast-a-Spell is also being used by teachers in Groton and Middletown. Other districts interviewed use one of several systematic spelling programs. Branford uses a multi-sensory program based on *Let's Read*, *Orton Gillingham*, and *Rosner*; Middletown, Greenwich, Monroe and Region 14 use *Rebecca Sitton's* spelling approach; Norwalk uses *Spelling for Writing* (Houghton-Mifflin); and Waterford uses *McCracken*.

[31] The CMT Writing Tests assess narrative writing in grade 4, expository writing in grade 6, and persuasive writing in grade 8. The State uses holistic scoring, that is, giving a single number to a paper, at all three grade levels.

6. Teachers use on-going assessment of students' reading proficiency.

The most common form of on-going assessment is the "running record" which is being used in most of the early-grade classrooms in the districts interviewed. Students read aloud to a teacher who keeps track of the errors the child makes and the strategies he or she uses to decode the text. Districts use the level of accuracy data (i.e., the percentage of words that students can read correctly) to: (1) match children with books that they can read independently, (2) re-teach skills that large numbers of children find difficult, (3) set up flexible groupings of children with similar needs, (4) design and provide individualized help to children in areas of weakness, and (5) keep track of the progress children are making. Some of the teachers interviewed noted the similarity between their diagnostic use of children's invented spelling (which assesses encoding) and the information they derive from the running records (which assess decoding). Both create a window into the way that children understand the relationship between the sounds of the language (the phonemes) and the letters that represent them. The more familiar teachers are with the systematic patterns of the English language,[32] the better able they are to diagnose their student's problems and design some possible solutions. For example, in the *Project Read* training in Greenwich, teachers learn about the structure of words which helps them to interpret different kinds of reading and spelling errors and their implications for instruction.[33]

Evelyn LaFontaine, the Language Arts specialist in New Britain, pointed out that it is sometimes inappropriate to use assessments in English for second-graders for whom English is not their first language. Therefore, New Britain uses *Aprenda's Primary Language tests in Spanish* to assess the reading progress of Spanish-speaking students.

Practices Used with Children with Delayed Reading Development

What characterizes the ten districts interviewed is their commitment to the early identification and treatment of children with delayed reading development. Many are aware that if students are not helped early, they will continue to have trouble in both their word-attack skills and their

[32] These patterns are phonological (e.g. knowing all the speech sounds in English), orthographic (i.e., knowing spelling patterns) and morphological (e.g., knowing plural endings, prefixes, roots, suffixes, etc.).

[33] Two examples were provided by Nancy Eberhardt, special education coordinator in Greenwich: A student reading bat as /pat/ is often making an error based on confusion of the b/p (voiced/voiceless pair) sounds. If recognized as a phonologically-based error, the teacher can help the child focus on these two speech sounds, thus treating the problem at the phonemic level, rather than at the visual (i.e., letter inversion) level. (Because visual errors may occur, teachers should be able to distinguish them from phonologically-based errors.) Another example in spelling is the implication of spelling said as "sed". This error signals that the student has good phonemic skills (i.e., the student correctly segmented the word into its three phonemes /s/ /e/ /d/), but the student needs to learn those words as whole (non-phonetic) words.

reading comprehension. Furthermore, they are likely to fall into a downwardly spiraling pattern of failure and embarrassment. Districts like Branford and Greenwich recognize that some children learn to read intuitively and relatively easily and need little help with explicit pattern-based instruction, whereas other children need additional time and individualized, explicit, and sequentially organized help in order to learn those same patterns. Acting on the belief that "an ounce of prevention is worth a pound of cure," some districts are providing different programs for these two different groups of learners as early as first grade, thereby reducing the number of reading problems later. Most districts also adopt a set of assessments for identifying children with serious reading difficulties by the end of the first grade and put into place procedures for providing effective assistance.

1. Teachers identify children with delayed reading development early and provide intensive interventions for them by the end of first grade.

As teachers work with children with delayed reading development, many of them grow to appreciate the importance of identifying them as early as possible and providing the appropriate interventions. Children who have early difficulties do not generally "outgrow" them. Rather, they need help in learning to hear the separate sounds in words and decoding new words; they need explicit help in understanding the regularities of the English language – e.g., when a vowel is long rather than short, etc., and they often need many hours of practice to develop reading fluency. Teachers report that these are necessary elements for successful reading comprehension.

Therefore, in many of the districts with improved reading scores, teachers and reading specialists have developed assessments and schedules for assessing children during kindergarten.[34] Greenwich teachers use the *Invented Spelling Task* (Rubin & Eberhardt, 1996) to identify students who are having difficulty at the end of kindergarten. Monroe uses the Yopp-Singer Test of Phoneme Segmentation (Yopp, 1995) in the spring of kindergarten and the fall of grade 1. Branford uses the *LinguiSystem Profile* and a teacher-constructed profile to identify kindergarten children who need more intense interventions.[35] They also have developed a Grade One Phonological Screening test and supplement their own tests with Rosner's *Sound Deletion* test.

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[34] Several teachers interviewed recommended the Summer 1995 and Summer 1998 issues of the *American Educator* as particularly useful to them The article by Torgesen in the 1998 issue, p. 36 has a helpful review of instruments for assessing children's phonemic awareness.

[35] Branford's teacher-constructed *Phonological Awareness Assessment* contains the following subtests – each with five items and a criterion of 80% correct: *minimal pairs* ("Are these two words the same?"), *rhyming* ("Give me a word that rhymes with mat and begins with /f/"), *rhyming discrimination /exclusion* ("Do these two words rhyme? Which two words rhyme?"--The teacher gives 3 words), *categorizing*, ("Which of these two words starts like bat?"), *counting words in a sentence* ("Clap as I say each word"), *counting syllables "*("Clap as you hear each part of the word"), *counting sounds* ("How many sounds do you hear in the word?"), *sound blending -phoneme*

These assessments are diagnostic in nature and help teachers to pinpoint the children's weaknesses. Often a child's own teacher can provide that child with targeted instruction and practice; sometimes this is done in consultation with other reading and speech and language experts.

2. Teachers use a variety of intervention strategies and experts to accelerate the development of delayed readers.

Sometimes, a child requires more time and/or expertise than the classroom teacher can provide. In several of the districts interviewed, additional assistance is provided by specially trained teachers and/or specially trained aides and paraprofessionals under the supervision of specially trained teachers. When necessary, specialists in reading, speech and language, and learning disabilities are brought in to help diagnose and work individually with children who need special services. Often, a team approach is used so that classroom teachers can reinforce the skills used in the individualized sessions.

Reading Recovery® is an individualized program which is being used in nine of the ten districts interviewed.[36] The Reading Recovery® teacher works daily and individually with the lowest achieving first-grade students in the school for an average of approximately 60 half-hour lessons. Every lesson contains a sequence of activities which uses both familiar and unfamiliar leveled text, letter and word-level skills, and writing. At any one time, a Reading Recovery® teacher works individually with only four students so that in the course of a school year, a teacher works with approximately 12 students. The rest of the teacher's time (between 40% and 50%) is spent either as a classroom teacher in a shared classroom or as a resource to other teachers – e.g., as a half-time reading consultant, providing writing support, working with small groups of students, training aides, and/or modeling lessons.

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synthesis ("The child puts the sounds said separately together into a word"), *sound analysis* ("What is the first sound in bat? the middle sound in big?, the last sound in bag?).

[36] Some of the earliest Reading Recovery® teachers were trained at Rhode Island College (Groton teachers), and at BOCES (one of a group of regional educational centers) in New York State (2 Norwalk teachers in 1991). Later, the University of Connecticut became a training site and more recently Middletown, New Britain and other districts have their own training sites. There are also additional training sites in other Connecticut districts. In Greenwich, Reading Recovery is used in five schools, including its three Title I schools, and Branford uses it in the school with the greatest SES range. Groton discontinued its involvement with Reading Recovery in the mid-1990s but began again with three teachers in 1998 and a fourth in 1999. In Monroe, there are eight Reading Recovery teachers for a population of about 300 first-graders; Waterford and Middletown have full implementation of Reading Recovery in every school; and Norwalk and New Britain have partial implementation.

Colchester and Waterford-two of the districts interviewed-use the Teaching Literacy Competence (TLC) program developed by Norma Salter and Dorothy Rose in Colchester, Connecticut. Although TLC incorporates many of the same features as Reading Recovery® and works individually with children daily for between 15 and 18 weeks on a series of reading and writing tasks, there are some important differences. One difference from Reading Recovery® is that it incorporates a sequentially structured phonics segment called START . The other is that it trains teachers and aides to work together in a "doctor-nurse" model. At least once a week, for each child in the program, the reading teacher screens and evaluates, determines his or her instructional level, designs individual lessons, monitors progress, and listens to and observes him or her reading. The tutor follows the individually prescribed plan. The TLC program requires 30 hours of training (5 full-day sessions), in a clinical setting and is considerably less expensive than Reading Recovery®. In Colchester, Salter and Rose also developed a program called *Bridge*, for children who are weak in phonemic awareness, concepts of print, and motivation to read. Like TLC, this program uses tutors working under the supervision of a trained teacher, but they work with children in small groups rather than individually. *Bridge* uses a variety of kinesthetic activities and visualization training to help children to gain the skills required to readily use the semantic, syntactic, and phonographemic (i.e., letter/sound) strategies that many of their classmates have learned.

New Britain uses an early literacy tutoring program called Strategies to Achieve Initial Literacy (S.A.I.L., developed by Maydie Bombart, a district-wide reading resource teacher) for first-grade students who need help. These teachers receive ongoing training, support and monitoring from a trained Reading Recovery teacher.

Summary of Practices Used Inside the Classrooms of Connecticut Districts Making the Greatest Progress in Reading

The sixth and final research question – How *is reading being taught in classrooms in the districts which made the greatest progress?* – can now be answered. On the surface, the instructional policies and practices used inside the classrooms of Connecticut's most improved districts appear quite varied. There is a prevailing eclecticism which fosters the teachers' use of different reading series and instructional strategies for different purposes. Therefore, districts vary superficially from each other on the pacing and details of their reading instruction. This is reiterated at the individual level where children within the same district are likely to read different "leveled" books both in and out of school according to their needs and interests.

However, beneath the surface there are some important similarities found in the districts which had made the most improvement in reading. From the beginning (often as early as preschool and certainly by kindergarten), all children are taught to hear the phonemes in words and manipulate them. This is considered a basic prerequisite for learning to read. Schools with strong phonemic awareness programs believe that these programs reduce the need for remedial programs later. Children then learn to "crack the code"- that is, they learn to link speech sounds with letter patterns, thus allowing them to access meaning from print. Some children learn this easily and begin to read almost effortlessly. Other children have difficulty learning these skills and generally need explicit instruction and considerable practice with decodable text. Connecticut's most successful schools have put into place screening instruments to identify which children need further assistance and which do not. Teachers in the districts making the greatest improvement are continually learning how to better monitor their children's literacy development and diagnose their weaknesses in phoneme awareness, decoding and comprehension in order to provide them with appropriate instruction and materials. In these districts, regular classroom teachers often work closely with reading specialists and speech and language pathologists.

The most successful Connecticut schools use a variety of different kinds of reading materials to address different instructional needs within the same classroom. For the children who have cracked the code, teachers work on developing fluency. The goal is to match children with texts that they can read at an independent level. Teachers use a variety of diagnostic tools for this purpose. For those who have not yet cracked the code, they explicitly and systematically teach children the patterns of the written language- its spelling and grammar (plural endings, prefixes, word families) and provide ample practice using decodable texts that students will be able to read by using word-analysis skills.

In Connecticut's districts with the greatest reading improvement, most children write virtually every day. This is done to develop children's communication skills and reinforce their reading skills. Whereas invented spelling is an early developmental stage as children learn to read, the most successful schools teach spelling explicitly. Most use an approach that teaches the regularities of the language and identifies word families. Districts report that these spelling programs serve to both improve writing and reinforce reading fluency.

From the beginning (preschool or kindergarten) and continuing through high school, all children are exposed to good literature. In the early grades, they listen to teachers read aloud and participate in discussions about these stories and nonfiction texts. These discussions build vocabulary, concepts, background knowledge, motivation for reading, and comprehension skills

and strategies. Children participate in discussions about books long before they learn to read them. In sum, the literacy programs in the Connecticut districts that made the greatest improvement in reading are balanced along a variety of dimensions.

SECTION 4

Summary and Conclusions

The present report documents the practices and policies in Connecticut schools showing the most improvement on the Connecticut Mastery Tests between 1993 and 1998. State policymakers, district superintendents, school principals, and classroom teachers were interviewed. The central interest in such a study is whether certain policy and classroom practices can be identified that can serve as a paradigm for other school districts or states aiming to improve students' reading competency.

Improvement on the reading test administered in Connecticut (CMT) parallels the improvement scores obtained on the national test (NAEP). Connecticut's demographic characteristics related to class and race did not change between 1992 and 1998 and do not account for the improvement in reading achievement. (See Section 1.)

State-Level Policies and Practices

The districts interviewed reported that the wide dissemination of the CMT test objectives and the increasingly user-friendly reporting mechanisms enabled them to clarify their teaching priorities in the area of reading. The visibility of school-level results through the State's publication of its *School Profiles* has motivated several districts to make changes in their reading instruction. The provision of resources to the State's neediest districts (three of which were interviewed in this study) through categorical grants has enabled these districts to enhance their reading initiatives and to begin to close the gap between their scores and those statewide. The 1986 Education Enhancement Act, with its emphasis on both higher salaries and standards, combined with the BEST mentoring program for beginning teachers have helped to staff Connecticut schools with well educated and experienced teachers. (See Section 2.)

District-Level Organizational Policies

What characterizes the majority of the districts with the greatest improvement in reading scores was the collective ownership of reading instruction as a district priority. Local school boards, superintendents of schools, principals, classroom teachers, and specialists knew what they were trying to accomplish and helped one another to achieve that end. The more successful schools functioned as well-organized systems, with each teacher using CMT feedback for his or her own students to make alterations in materials, strategies and curricular emphasis. Principals and teachers felt responsible for improving their students' reading skills. Where necessary, they

marshaled parents and other specialists to help them, and when possible, they increased the amount of in-school and out-of-school reading time. (See Section 3.)

Classroom-Level Instructional Practices

Former Commissioner Tirozzi's reminder that the ultimate effectiveness of policy is determined by what happens when the teacher closes the classroom door is particularly relevant here. On the surface, there is a prevailing eclecticism in the districts interviewed which fosters the teachers' use of different reading materials and instructional strategies for different learner needs. Districts vary from each other on the pacing and details of their reading instruction. This is reiterated at the individual level where children within the same district are likely to read different "leveled" books both in and out of school according to their needs and interests.

However, *beneath the surface* there are some important similarities found in the districts which had made the most improvement in reading. From the beginning (often as early as preschool and certainly by kindergarten), all children are taught to hear the phonemes in words and manipulate them. This is considered a basic prerequisite for learning to read. Schools with strong phonemic awareness programs believe that these programs reduce the need for remedial programs later. Children then learn to "crack the code" – that is, they learn to link speech sounds with letter symbols, thus allowing them to access meaning from print. Some children learn this easily, learning to read almost effortlessly. But many do not, and those children generally receive explicit instruction in sound/symbol associations and other aspects of the structure of the language accompanied by considerable practice with decodable text.

Connecticut's most successful schools have put into place kindergarten screening instruments to identify which children need further assistance and which do not. Teachers in the districts making the greatest improvement are continually learning how to monitor their children's literacy development and how to diagnose their children's weaknesses in phoneme awareness, decoding, and comprehension in order to provide them with appropriate instruction and materials that they can decode. In these districts, regular classroom teachers work closely with reading specialists and speech and language pathologists to help diagnose students' reading difficulties and provide appropriate interventions. Teachers use a variety of diagnostic tools for this purpose. For those who have not yet cracked the code, they explicitly and systematically teach children the patterns of the written language – its spelling (including prefixes, roots and suffixes) and its grammar, providing ample practice using decodable texts.

The most successful Connecticut schools use a variety of different kinds of reading materials (i.e., authentic children's literature, predictable texts, decodable texts, and leveled trade books) to

address different instructional needs within the same classroom. For the children who have cracked the code, teachers work on developing decoding accuracy and automaticity in order to build greater fluency. A widespread goal in the schools interviewed is to match children with texts that they can read at an independent level (i.e., neither too easy nor too difficult) and ensure lots of practice in reading.

In Connecticut's districts with the greatest reading improvement, most children write virtually every day. This is done to develop children's communication skills and reinforce their reading skills. Whereas invented spelling is accepted at an early developmental stage as children learn to read, the most successful schools teach conventional spelling explicitly. Most use an approach that teaches the regularities of the language and helps children to learn clusters of words that are phonologically (e.g., hard, farm, cart) or morphologically similar (e.g., reform, forming, inform, transformation) as opposed to memorizing unrelated word lists. Districts report that these spelling programs serve to both improve writing and reinforce reading skills.

From the beginning (preschool or kindergarten) and continuing through high school, all children are exposed to good literature. In the early grades, they listen to teachers read aloud and participate in discussions about these stories and nonfiction texts. These discussions build vocabulary, concepts, background knowledge, motivation for reading, and comprehension skills and strategies. Children participate in discussions about books long before they learn to read them.

In sum, the literacy programs in the Connecticut districts which made the greatest improvement in reading are balanced along a variety of dimensions. The composite picture of the successful reading sequence which grows out of the series of interviews with the most improved districts is consistent with the best practices described in the research literature.[37] The challenge facing Connecticut at the present time is how to replicate the characteristics of effective classrooms described in this report in the rest of the State's schools – the elusive "scaling up" problem.

Qualifications and Caveats

The methodology used in this study provided an inside view of the instructional policies and practices in place in the ten Connecticut districts with the greatest improvement in reading.[38]

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[37] See for example, *American Educator* (Summer 1995 and Summer 1998); Brady & Moats, 1997; Committee on the Prevention of Reading Difficulties in Young Children, 1998, www.nap.edu; Lyon, 1998; Moats, 1999; National Research Council, 1999.

[38] One of the limitations of this study is that it did not interview any districts which made little or no improvement to see whether the variables thought to explain high improvement would be absent in districts with little or no improvement.

Collectively, these districts provide evidence for the practices summarized here. Yet three caveats should be underscored. First, the policies and practices described are not occurring universally. The districts interviewed vary in both the quantity and quality of their implementation. In some districts, the practices are universally applied; in others, they may be applied in some schools but not others; and in some cases only a few teachers are using them. A much larger project than this one is required to determine just how prevalent these practices are, how well they are executed, and whether, in schools where they are executed well and universally, students have higher reading success.

Second, because NAEP data showing change over time were only available at the fourth grade level, the primary focus of my interviews was on early literacy development, especially on the development of phonemic awareness and on "cracking the code" – children's awareness of the relationship between letters and sounds. But, although necessary, these skills are not sufficient for developing fluent readers. Once students have learned these skills, the successful districts interviewed have put into place a scope and sequence which teach semantic and syntactic skills in grades 3 and 4 and provide students with ample practice to develop automaticity and subsequent fluency. By grade 4, children in these districts have learned to read, and as the adage continues can now "read to learn". As several educators pointed out, the CMT Degrees of Reading Power passages on the fourth-grade test (see Appendix C) are similar to many of the non-fiction materials found in fourth-grade social studies and science books.

The third caveat is that although Connecticut students perform well relative to national levels of reading success, and although the particular districts featured in this report have made noteworthy progress on the statewide tests, too many children in the state (46% on the CMT) do not reach the statewide goal (see Figure 4). On the most recent NAEP scores, 22% are reading below a basic level, and only 46% are proficient readers (see Figure 3). The percent of students reaching the statewide mastery goal in Connecticut drops to 21% in ERG I, the educational reference group that includes the state's five largest cities. Even in the most improved districts studied here, the administrators and teachers would agree that much more progress has to be made to achieve the desired level of reading success. (See Table 9 for the Index scores of these districts.)

Some Next Steps

The final section of this paper represents my attempt to extrapolate from the policy lessons learned in Sections 2 and 3 some possible next steps for Connecticut schools to enable all students to read fluently and with enjoyment.

State-Level Policies and Practices

Continue to Provide Targeted Categorical Grants to the State's Neediest Districts

Over the past decade, one of the policy lessons learned is that categorical grants have been effectively used to help local districts establish new priorities. There is currently a concerted effort by Connecticut political and educational leaders to use categorical grants to address the worrisome numbers of children who are not attaining adequate levels of reading achievement and to increase the numbers of proficient readers. The Legislature, demonstrating important bipartisan support, has put a number of statewide policies in place between 1993 and 1998 that are having a positive impact on Connecticut schools (see Section 2 and Appendix B). These include early intervention, summer school for children with reading difficulties, and extending family resource centers.

Provide a Clear Set of Literacy Objectives for Grade 1-3

The Connecticut Mastery Test has provided a focus for teachers throughout Connecticut. This fall, the State will convene a Statewide Panel on Reading which has as its central goal the development of consensual recommendations to improve the teaching of reading statewide. This Panel has the potential to establish a clear focus that can guide other state and local initiatives.

Make Available a Set of Instruments for Assessing Phonemic Awareness and Other Key Early Literacy Skills

Just as the CSDE made available optional tests at grades 3, 5, and 7 to supplement the statewide tests at grades 4, 6, and 8, the CSDE should develop a set of quality assessment tools for statewide use for each of grades K-3 to identify children at risk. Personnel at the State Department of Education and other qualified agencies should be ready to provide training in the diagnostic and prescriptive use of these instruments.

Use the School Profiles to Collect and Disseminate Information about Local Schools' Early Literacy Practices and Their Effectiveness

The School Profiles have been a catalyst for change at the school level in Connecticut. If schools were required to report publicly on the nature and effectiveness of their programs in phonemic awareness, decoding, reading comprehension, writing, spelling, etc., this would be likely to motivate a greater interest in these skills. It might also facilitate sharing ideas among schools and districts. Included among the data reported might be the amount of time spent on reading/language arts instruction, summer and after-school reading programs, etc.

Change Teacher Certification Requirements to Reflect the Research in Early Literacy.

Interviews confirmed that most teachers do not have the background necessary to diagnose children's reading problems and provide them with appropriate instruction. Teachers are especially weak in their knowledge of the structure of language, of explicit methods of reading instruction, or of formal and informal assessment methods to evaluate student progress. The districts studied had a limited number of "experts" in these abilities who had sought out specialized training (e.g., Orton-Gillingham, Lindamood, Wilson, Haskins Laboratories workshops on phoneme awareness and other reading skills, etc.) outside of the regular educational establishment and who then served as "mentors" within the schools. These skills should become part of the certification requirements for all new teachers of K-3 literacy and part of the Continuing Educational Units requirements for experienced teachers.

Work with the State's Colleges and Universities to Create the Necessary Infrastructure to Train New Teachers and Provide Inservice for Experienced Teachers.

The State Departments of Education and Higher Education should expand training in approved Departments of Education to incorporate important content and techniques. (For one possible list of critical skills for the teaching of reading, see the excerpt from Moats, 1999 in Appendix E.) The State could provide incentives to university and college Departments of Education to expand their scope of training. For example, the State could fund new faculty positions to bring in experts on underrepresented topics (e.g., structure of language, of explicit methods of reading instruction, or of formal and informal assessment methods to evaluate student progress). For maximum success, these new positions should be aligned with the Panel's recommendations, current research in reading, and new certification requirements. Because many educational reforms have failed due to an unmet need for teachers to learn necessary skills, the importance of this policy initiative cannot be overstated.

District-level Support and Incentives

Foster Ownership and Accountability in the District and Schools.

Districts should ensure that local leaders (including boards of education and principals) are informed about effective content and practices for literacy and that these become part of the districts', schools' and teachers' goals. As a first step, local districts should ensure that there is at least one, and preferably several, people with adequate expertise in each school who could be available for guidance on the most up-to-date reading materials and strategies, modeling them for other faculty.

Classroom-Level Instructional Practices

What will go on behind the classroom door in K-3 classrooms will depend, in large part, on how well the policies like the ones listed above are implemented. The current study of Connecticut's most improved schools provides evidence that there are classrooms in both wealthy and poor districts whose children are making substantial progress. However, this progress does not come easily. It requires a collective commitment on the part of the staff to continue to learn more about the structure of language and the most effective ways to monitor students' progress and choose the appropriate reading materials and teaching strategies.

Final Comment

This report goes beyond saying, "Connecticut did something right." The current challenge is both to do what is right even better, and to be open to new approaches as they are tried and researched. Reading well is a dynamic skill. So must be our approach to teaching this most fundamental of all learning skills.