Measuring School Effectiveness:[1] A Three-year Study

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In January 1983 the Dallas Independent School District's Office of Institutional Research (OIR) was requested to propose a methodology for measuring the direct influence school principals have on the achievement of students within their schools. After considering a variety of approaches that might be used, two quite different methodologies were proposed. The first called for building a theoretical model to describe the causal relationships among the more salient influences of student achievement (the principal being only one of these) and student performance. Once developed, appropriate statistical procedures were to be used to isolate the independent contributions of each influence. This approach had the advantage of being explanatory in that it held the promise of being able to provide greater understanding of the "causal" factors at play in determining achievement.

The second approach proposed made no attempt to isolate or explain the causal factors that determine student achievement. Rather, it was developed under the assumption that student achievement within a school was the school's (ultimately the principal's) responsibility. Furthermore, it was assumed that on the basis of previous, individual-student achievement performances, a reasonable expectation of current levels of achievement could be predicted. Then, at the end of a given year, if students were found on average to have raised (or lowered) their achievement levels beyond their expectation the school (and principal) was to be given credit for an "outstanding school effect."

The two approaches differed considerably in terms of complexity and resource requirements. While the second approach could be accomplished using readily-available data, and well-known and widely accepted statistical procedures, the former approach required the collection of data not routinely collected by the district. It also required the development (or acquisition) of new instruments for the collection of these data. In addition, the first approach required using statistical procedures for conducting causal anaylses that are relatively new and, while proven effective in other areas of application, are untested in an application such as that proposed.

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[1]Paper presented at the annual meeting of the American Educational Research Association, April 16-20, 1986.

After considering the relative merits of the two approaches, the Dallas ISD determined that the second approach, using currently and routinely available data would be the one to pursue. Also the empahasis was shifted somewhat so that the objective became one of deriving indexed measures of schools' effectiveness. While the procedures were to remain essentially the same, the attribution of schools' effectiveness in raising student achievement levels was to be made elsewhere.

Over the remaining months of the 1982-83 school year preliminary tryouts of the procedures, using historical data files, were conducted in order to establish their validity and to make an assessment of the amount of resources that would be required for a full-scale implementation. The result of these preliminary tryouts were encouraging. They clearly established the validity and feasibility of the procedures. They also showed that no more than two-years' worth of historical data were needed to yield stable expectations of current achievement levels. In addition, the tryouts provided suggestions for resolving a theretofore unresolved problem involving the question of how to combine results across subtests and grade levels within schools.

Having obtained satisfactory results from the tryouts, a full-scale study, using spring 1983 test data as a criterion and spring 1982 and 1981 data as predictors, was designed and implemented. The results of that study as well as those from the tryouts have been reported elsewhere (Webster & Olson, 1984). Since then the procedures have been used twice more, in 1984 and 1985.

In 1984 (for the 1983-84 school year) the results of the procedures, which yield a rank-ordering of schools in terms of effectiveness as defined by the procedures, were used to award merit stipends of up to $1400 to teachers and staff members in top-ranked schools. The procedures were not used for this purpose in 1985 (for the 1984-85 school year); rather their intent was to provide top-level administrators additional information upon which to base management decisions.

The purpose of this paper is to describe the procedures employed by the Dallas ISD to measure schools' effectiveness, and to present and compare some of the results obtained from each of the three study years: 1983, 1984, and 1985.

Motivation for the Definition of School Effectiveness

There are probably as many ways to define school effectiveness as there are individuals willing to give it serious consideration. The approach used in the Dallas ISD studies was to operationally define school effectiveness as the degree to which a school's mean standardized test performance exceeded its expectation based upon previous years' achievement. This definition is expanded upon later, but first a few comments are in order.

The definition involves the exclusive use of standardized test performance. We realize that there is no shortage of critics who would detract from the advisability of using standardized test scores as the only measure of schools' success in promoting achievement. Certainly there are other areas not measured by these tests in which important learning and achievement occur. However, there is no general consensus as to what these additional areas of learning are; the district does not currently test students in these areas, whatever they are; and there is no guarantee that reliable measures exist for assessing achievement in these areas, even if they could be identified. On the other hand, achievement in the basic-skill areas of reading, mathematics, and language arts are staples of any public school's instructional program. The importance of fostering achievement in these areas enjoys virtually universal acceptance. Furthermore, it is in these basic-skill areas that the constituencies of the nation's public schools ultimately demand accountability. When national commissions report on the status of achievement in our nation's schools they actually are more specifically reporting on the status of nationally norm-referenced achievement test results.

The various standardized test batteries used by the Dallas ISD to measure achievement are highly regarded in the professional educational and measurement communities as being reliable and valid. Grade equivalent scores derived from raw scores on these tests, though often maligned for their careless use by practitioners, have been carefully developed to yield equal-interval growth scales spanning grades one through twelve and beyond.

The operational definition assumes that in the absence of extraordinary intravention, students' achievement growth is linear in the scale of GE units over successive years of schooling. Using appropriate regression procedures, it is possible to predict individual schools' achievement levels at the end of a given year. These predictions become the schools' expected levels of achievement. When a particular school, when measured at the end of the year, is found to depart markedly from its expectation we conclude that something extraordinary has occurred. We choose to attribute this result to a pervasive school effect, and, in the absence of additional study, make no further attributions as to the causal factors leading to the effect.

The use of linear regression techniques effectively capture the achievement growth rates of students in the form of mathematical models (linear equations) which in turn can be used to predict levels of achievement. This has the effect of adjusting current levels of achievement for correlation with previous levels of achievement. Furthermore, since native ability and other student background influences are highly correlated with achievement, removing the effect of previous achievement levels indirectly removes the effects of these influences as well. Thus, schools are treated as though all students began the year at the same level. Schools with poorer-performing students begin with the same oportunity for demonstrating success as schools with better-performing students.

Data. The data consisted of grade-equivalent (GE) scores in reading (total reading subtest), mathematics (total mathematics subtest), and language (total language subtest, ITBS and CTBS; written expression subtest, TAP). Language scores were not available for the CTBS. On all three batteries the GE score is derived as a normalized growth scale spanning 12 years or more schooling.

Procedures.

The production of school effectiveness indices, for each study year, involved three distinct phases: a regression phase, a prediction and estimation phase, and a ranking phase. Each of these is described in the paragraphs that follow.

Regression Phase. This first phase of the analysis involved computing prediction equations for each of seven possible combinations of test batteries over three successive years of testing:

(1) CTBS-CTBS-CTBS,
(2) CTBS-CTBS-ITBS,
(3) CTBS-ITBS-ITBS,
(4) ITBS-ITBS-ITBS,
(5) ITBS-ITBS-TAP,
(6) ITBS-TAP-TAP, and
(7) TAP-TAP-TAP.

For each combination of test batteries, equations were computed for each grade-level and subtest combination where there were at least 25 cases district-wide[3]. Thus, for each study year there was one regression equation for each cell containing a value greater than 25 in Tables 3 through 5.

Prediction and Estimation Phase. This next phase involved computing residual gain scores, GAIN = (actual-score minus predicted-score), individually for each student in the study based upon the appropriate regression equation (test battery combination, grade level, and subtest).

The GAINs eventually were to be aggregated over batteries, subtests, and grade levels within schools. However, both the reliability and the scale of measurement of the indivdual GAINs varied depending upon the particular function used to compute GAIN and the individual's location in the domain of predictors. For instance, an expected third-grade score in

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[3]This is not entirely accurate. In the first study year (1983) equations were not computed for those mixed-battery combinations involving the CTBS. Hence, for that year, there are no equations for CTBS-CTBS-ITBS or CTBS-ITBS-ITBS combinations.

reading computed by the function derived from CTBS-CTBS-ITBS data, say, was less reliable than a similar expectation computed from the function derived from ITBS-ITBS-ITBS data. Furthermore, expectations derived for higher grade levels were generally more reliable then expectations derived for lower grades. Additionally, expectations for individuals close to the centroid of the predictors were more reliable than those for individuals farther away. Differences in reliability of these estimates in turn affected the scale of measurement of the GAINs. A unit gain in third-grade reading on the CTBS, for instance, was not immediately comparable to a unit gain in fourth-grade mathematics on the ITBS. To correct for differences in scale and reliability of prediction, the individual GAINs were standardized by dividing each by its respective district-wide standard errors of estimate. We used the following equation:

$$\text{DELTA} = \text{GAIN} / \text{SQRT}(\text{VAR}(Y, \text{ given } X)), \qquad (1)$$

where

DELTA is the standardized GAIN,

VAR(Y, given X) is the conditional variance of an expected (predicted) value, Y, for a given vector of predictor scores, X. This is a direct generalization of Draper and Smith's Equation 1.4.11 (Draper & Smith, 1981, p. 30) to the two-predictor case. It takes into account the independent variance of an observation about its mean by adding this variance to the variance of the mean expectation, VAR(Y), estimated from district-wide data.

Once the DELTAs had been computed for students on each subtest at each grade level in each school they were aggregated, first across subtests and then over grade levels within school. In the Dallas ISD there are five types of schools identified by their grade-level configuration:

primary centers, grades K through 3,

intermediate centers, grades 4 through 6,

elementary schools, grades K through 6,

middle schools, grades 7 and 8, and

high schools, grades 9 through 12.

Thus the number of grade levels aggregated within a school depended upon the school's type of grade-level configuration.

Ranking Phase. Initially, several alternative statistics for ranking schools were proposed and studied. A detailed summary of that work has been reported elsewhere (Webster & Olson, 1984). Here we will be concerned only with two of those statistics and one additional statistic that has been found useful in determining school ranks.

Columns headed by (R) give the relative rank of the schools in terms of the statistic to the left.

It is seen that whereas School 1 ranked highest in terms of (the group) average gain over expectation (a gain of .51 GE units), it ranked third in terms of average student standardized gain over students' own, individual expectations, and 6th in terms of the lower-bound of its confidence interval. On the other hand School 4, which ranked 28th in terms of average gain (.18 GE units), ranked 20th in terms of average standardized student gain, and 17th in terms of LB(DELTA). To gain some greater insight as to how these apparent inconsistencies in school rankings came about, consider Table 2, below.

TABLE 2

Intermediate Statistics for Four Example Schools

SCHOOL	EXPECTATION	VAR(EXP)	VAR(DELTA)	SEM(DELTA)	N
1.	5.39	(.29)	5.70	.18	184
2.	5.08	(.47)	3.78	.10	356
3.	5.20	(.28)	3.88	.11	346
4.	4.49	(.15)	4.40	.05	1475

The column labeled VAR(EXP) is the average value of the variance term given in the denominator of Equation 1. It has been computed directly from the values given in Table 1 (it did not appear in any of the printouts from the programs used to compute these analyses).

We note first that of the four schools School 4 had the lowest average expectation (over subtests and grade levels). Apparently its students had a history of lower achievement. On the other hand, while its average gain over the group expectation was lowest of the four, School 4 exhibited about as much gain (in terms of GE units) as Schools 2 and 3. However, when we examine the values for VAR(EXP) we see that the individual expectations for School 2 were appreciably less variable (or more reliable) than those for the other schools. It took a smaller, average individual gain over expectation to be regarded as equally likely to be different from 0.0 in School 4 than a larger, average individual gain over expectation in the other schools with less reliable expectations. This was obvious from the standardization: the average individual gain of .18 GE units for School 4 converted to an average standardized gain of .46 units; whereas, in School 2, say, where VAR(EXP) was twice as large, an average individual gain of .24 GE units converted to an average standardized gain of only .35 units. School 1, which had the least reliable expectations, managed to rank higher than the others by virtue of its students' considerably stronger showing in terms of GAIN.

While standardization of student gains corrected for differences in the reliability of predictions, there remained differences in the variability of the DELTAs within schools. When averaged, the MEAN(DELTA)s in schools with smaller variances could be considered more reliable than the MEAN(DELTA)s in schools with larger variances. Whereas two schools might have the same value for MEAN(DELTA), we would have greater confidence in attributing a real effect to that school having the smaller variance. We account for differences in variances of schools' MEAN(DELTA) by subtracting from each its standard error of the mean. This results in an improvement in School 4's ranking owing to its more reliable mean estimate (we could have more confidence in the location of its mean than we could for another school, perhaps having the same mean but a larger SEM(DELTA)). On the other hand, School 1 ended-up with a somewhat lower ranked-standing. While it had shown the largest over-all gain in GE units, due to its greater variability in test scores (and perhaps its small number of cases) the estimate of its MEAN(DELTA) was sufficiently less reliable than that for three other schools with lower MEAN(DELTA)s for its LB(DELTA) statistic to be ranked sixth. Two of the schools ranked higher on LB(DELTA), in fact the two schools ranked one and two, had both higher MEAN(DELTA)s and smaller standard errors of the mean.

In the second study year, 1983-84, we began computing an additional statistic for each school: the percentage of students making significant gains beyond their expectation (significance was defined as a gain equal to or greater than one standard error of prediction). This statistic enjoyed the advantage of being easier to explain.

RESULTS

Regression Phase

Numbers of Cases. Shown in Tables 3 through 5, are the numbers of cases per test-battery combination, subtest, and grade level available for computing prediction equations in each of the three study years. Table 3 differs somewhat from Tables 4 & 5 in that in 1982-83 we did not compute mixed-battery combinations involving the CTBS-Espanol.

Equations. A regression equation was computed[4] for each cell in the tables that had at least 25 cases. For each computation the study- year, spring subtest score was the criterion variable, and the two previous years, (one previous year at grade 2) were the predictor variables. The data were grade-equivalent (GE) scores.

Accuracy of prediction. Two ways to assess accuracy of the prediction equations are to examine their coefficients of determination R^2 and standard errors of measurement. These are given in Tables 6 and 7 for those equations where the numbers of cases in Tables 3 through 5 are greater than 1000.

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[4]A computer program, designed to yield all the analyses for this study, was developed locally.

Table 3

Numbers of Cases by Battery Combination Used in Computing Regression Equations for the 1982-83 Study Year

Test Combination (81-82-83)[a]	Grade Level in 1982-83									
	2	3	4	5	6	7	8	9	10	11
READING										
CTBS-CTBS-CTBS	634	166	57							
ITBS-ITBS-ITBS	7574	6501	6932	6703	7132	7107	6737			
TAP-TAP-TAP								6707	5255	4989
MATHEMATICS										
CTBS-CTBS-CTBS	632	163	56							
ITBS-ITBS-ITBS	7367	6263	6768	6526	6954	6915	6602			
TAP-TAP-TAP								6532	5212	4971
LANGUAGE[b]										
ITBS-ITBS-ITBS	5188	6300	6691	6604	7039	6928	6598			
TAP-TAP-TAP								6347	5074	4870

[a] In the 1982-83 study year, mixed battery combinations were not used.

[b] The CTBS-Espanol did not include a language subtest.

Table 4

Numbers of Cases by Battery Combination Used in Computing Regression Equations for the 1983-84 Study Year

Test Combination (82-83-84)	Grade Level in 1984-85									
	2	3	4	5	6	7	8	9	10	11
READING										
CTBS-CTBS-CTBS	551	160	45	18						
CTBS-CTBS-ITBS	90	220	107	23	19	12				
CTBS-ITBS-ITBS	22	124	277	222	60	32	34			
ITBS-ITBS-ITBS	7338	6656	6678	6840	6668	7009	6627			
ITBS-ITBS-TAP								5946		
ITBS-TAP-TAP								681	4808	
TAP-TAP-TAP								37	552	4769
MATHEMATICS										
CTBS-CTBS-CTBS	557	159	44	19						
CTBS-CTBS-ITBS	89	220	102	23	18	10				
CTBS-ITBS-ITBS	22	124	273	218	60	29	34			
ITBS-ITBS-ITBS	7288	6423	6445	6718	6531	6905	6548			
ITBS-ITBS-TAP								5899		
ITBS-TAP-TAP								671	4752	
TAP-TAP-TAP								35	560	4781
LANGUAGE[a]										
ITBS-ITBS-ITBS	4842	4604	6466	6659	6601	6875	6492			
ITBS-ITBS-TAP								5728		
ITBS-TAP-TAP								620	4607	
TAP-TAP-TAP								34	517	4631

[a]The CTBS-Espanol did not include a language subtest.

Table 5

Numbers of Cases by Battery Combination Used in Computing Regression Equations for the 1984-85 Study Year

Test Combination (83-84-85)	Grade Level in 1984-85									
	2	3	4	5	6	7	8	9	10	11
READING										
CTBS-CTBS-CTBS	717	151	24	14	4					
CTBS-CTBS-ITBS	100	227	75	34	11	2				
CTBS-ITBS-ITBS	33	114	260	109	36	31	27			
ITBS-ITBS-ITBS	7596	6542	6728	6757	6858	6652	6551			
ITBS-ITBS-TAP								5707	1	1
ITBS-TAP-TAP								661	4710	1
TAP-TAP-TAP								49	562	4788
MATHEMATICS										
CTBS-CTBS-CTBS	713	150	23	13	4					
CTBS-CTBS-ITBS	100	230	75	34	12	2				
CTBS-ITBS-ITBS	33	112	245	105	36	32	27			
ITBS-ITBS-ITBS	7512	6427	6584	6614	6789	6552	6467			
ITBS-ITBS-TAP								5691	1	1
ITBS-TAP-TAP								663	4730	1
TAP-TAP-TAP								46	567	4798
LANGUAGE[a]										
CTBS-ITBS-ITBS	29									
ITBS-ITBS-TAP	7292	4220	4895	6650	6812	6479	6386			
ITBS-ITBS-TAP								5679	1	1
ITBS-TAP-TAP								668	4725	1
TAP-TAP-TAP								44	533	4670

[a]The CTBS-Espanol did not include a language subtest.

As can be seen in the tables, in terms of accuracy, the equations were remarkably stable over the three years studied, although a loss of approximately ten percent in variance attributable to previous test scores was observed in reading at grade levels five through eight from 1982-83 to 1984-85. The reasons for this have yet to be investigated, but it could reflect a shift in instructional emphasis in reading.

Table 6 shows that, in each year, prediction tended to improve with increasing grade level. A minor exception to this general trend occurred in language at grades nine through eleven, following the transition from junior high school. An explanation for this exception might stem from the fact that the language subtest on the TAP (the battery used in high school) is actually a test of written expression and is substantively different from the language subtest of the ITBS (used in grades one through eight). This also has not been investigated, and is mentioned only as a possibility for further research.

The finding of better prediction at higher grade levels is interesting in that it implies greater dependency of current achievement on previous achievement the longer a child remains in school. In the earlier grade levels factors not measured by previous test scores apparently play a much greater role in determining achievement than they do at higher grade levels. Since we assume that previous test scores, in addition to measuring previous achievement, indirectly measure such background factors as native ability and home environment, we attribute these "other" factors to effects associated directly with the schools.

The residual variance (i.e., the variance not attributable to previous years' test scores) is of primary importance to the procedures described in this paper. In effect, the residual variance is the variance in current achievement due to factors other than prior achievement and, consequently, factors other than those correlated with prior achievement. We assume that these other factors are, except for errors in measurement, school-related.

Among the lower grade levels there exists a greater potential for larger differential effects due to schools than there exists among higher grade levels. But this is true only in a practical sense, for while the variance of interest (the residual variance) is considerably smaller at the higher grade levels, we can still expect to observe significant differential effects due to schools.

The standard errors of measurement, given in Table 7, are roughly between .7 and 1.0 GE units in grades one through eight, and jump to between 1.7 and 2.0 GE units in high school. The large increase in standard errors of estimate in grades nine through eleven derive from much larger variances on the TAP. For instance, the standard deviation of mathematics scores at grade eight in 1984 was 1.48 GE units; at grade eleven, it was 3.51 GE units. Since the criterion score variance is a multiplier in the derivation of the standard error of measurement it is not surprising that these are much larger for estimated TAP scores than for estimated ITBS scores.

Table 6

Coefficients of Determination (R^2) for
Each Grade Level by Subtest and Study year

Grade Level	READING			MATHEMATICS			LANGUAGE		
	83	84	85	83	84	85	83	84	85
2	35	38	41	28	30	36	33	32	34
3	43	43	43	39	40	43	39	40	39
4	57	58	55	57	57	58	62	62	59
5	72	63	62	72	69	68	76	72	70
6	73	71	64	77	76	72	80	80	74
7	77	73	70	83	76	78	86	85	83
8	79	77	69	84	78	78	87	85	82
9	71	70	68	71	60	67	65	61	59
10	78	77	76	78	78	74	70	70	69
11	78	77	77	80	79	78	72	69	69

Note 1: Decimal points have been omitted.

Note 2: Coefficients given are for the following battery combinations:

Grades 2-8, ITBS-ITBS-ITBS;
Grade 9, ITBS-ITBS-TAP;
Grade 10, ITBS-TAP-TAP;
Grade 11, TAP-TAP-TAP.

Table 7

Standard Errors of Estimate for
Each Grade Level by Subtest and Study year

Grade Level	READING			MATHEMATICS			LANGUAGE		
	83	84	85	83	84	85	83	84	85
2	.882	.879	.783	.697	.726	.666	1.029	1.062	.983
3	.915	.906	.836	.675	.673	.644	.923	.905	.875
4	.936	.898	.922	.734	.739	.664	.884	.858	.861
5	.901	1.016	.900	.701	.719	.650	.789	.793	.782
6	.950	.936	.986	.702	.707	.723	.826	.780	.811
7	.961	.976	.975	.683	.726	.718	.790	.798	.767
8	1.000	.986	1.012	.702	.742	.697	.845	.835	.784
9	1.732	1.780	1.789	1.591	1.961	1.756	1.913	2.008	2.040
10	1.798	1.856	1.846	1.523	1.615	1.667	1.924	1.918	1.900
11	1.956	1.924	1.926	1.603	1.606	1.636	1.997	1.988	1.993

Note: Standard errors are for the following battery combinations:

Grades 2-8, ITBS-ITBS-ITBS;
Grade 9, ITBS-ITBS-TAP;
Grade 10, ITBS-TAP-TAP;
Grade 11, TAP-TAP-TAP.

Estimation of Student Expectations

The second phase of the study involved computing students' expected mean levels of achievement at the end of a given year and then measuring the degree to which they exceeded or fell short of their expectation.

Once the regression equations were computed they were used to compute the DELTA scores as described earlier in the section on method. For each student, expected subtest scores were predicted using equations for the appropriate subtest, battery combination, and grade level. These expectations were then subtracted from the student's actual subtest scores and the results divided by the conditional standard deviations of the expectations yielding a standardized DELTA for each student on each subtest. Since the individual DELTAs were the components of the school ranking statistics, it was of some importance to examine their relationship with certain variables for which the indices of school effectiveness were supposed to be unrelated prior to averaging them within schools.

Correlations Between DELTAs and Various School-related Factors

In proposing this approach to measuring school effectiveness, we sought an index that was independent of many of the idiographic and school-specific, contextual factors contributing to differences among schools. We were limited by the availability of only certain classes of variables such as student demographics, size of enrollment, ethnic composition of school faculty, and the ethnic and socioeconomic composition of the student body. We examine these relationships for the second and third study year in the paragraphs that follow (we did not perform a corresponding analysis in the first year of the study).

Correlations Between DELTA and Student Demographics. We had available data on a limited set of student demographic variables that could potentially affect a school's relative ability to foster achievement. These were students' race, limited English proficiency (LEP) status, reduced lunch status (a proxi measure of socieoeconomic status), desegregation status (whether a student was eligible to be bussed for desegration or not), and, for elementary school students only, students' retained status (whether a student had been retained at grade level). Correlations between these variables and DELTA are given in Table 8 for each subtest. The table is divided into sections, one for each type of school analyzed as a group. It is clear from the table that the DELTAs were unrelated to any of these demographic variables.

Correlations Between DELTA and School Enrollment Data. A second set of variables with which we wanted DELTA to be unrelated included the contextual variables of school size (enrollment) and the percentage makeup of various subpopulations of students within schools. Specifically, this set included size of enrollment, the percentages of white, black, and Hispanic students in a school, the percentages of students receiving free or reduced lunch, the percentages of students being served by Chapter I programs, the percentages of LEP students, and the average daily

Table 8

Correlations Between DELTA and Various
Student-demographic Variables

Demographic Variable	READING '84	READING '85	MATHEMATICS '84	MATHEMATICS '85	LANGUAGE '84	LANGUAGE '85
K-3 Schools						
Race	12	10	10	11	12	13
LEP Status	00	02	-03	05	03	03
Reduced Lunch Status	-12	-07	-16	-06	-12	-11
Bussed for Desegregation	-04	-02	-04	-01	-04	-01
Retained at Grade Level	-02	-05	-06	-06	-06	-06
4-6 Schools						
Race	22	19	10	13	10	07
LEP Status	-01	00	05	03	-01	03
Reduced Lunch Status	-03	-15	-06	-09	-09	-08
Bussed for Desegregation	07	10	02	08	05	06
Retained at Grade Level	00	-08	-01	-09	-05	-08
K-6 Schools						
Race	09	15	11	10	05	08
LEP Status	-03	-02	-02	-02	-02	-00
Reduced Lunch Status	-08	-11	-09	-10	-08	-07
Bussed for Desegregation	-07	-02	-08	-06	-06	-03
Retained at Grade Level	-04	-11	-05	-13	-04	-11
7-8 Schools						
Race	09	16	08	13	07	05
LEP Status	-01	04	-01	00	01	03
Reduced Lunch Status	-06	-02	-03	-02	-01	02
Bussed for Desegregation	01	02	02	06	06	07
9-12 Schools						
Race	05	04	01	06	03	04
LEP Status	02	02	-01	03	02	05
Reduced Lunch Status	-01	00	04	03	-01	03
Bussed for Desegregation	04	02	05	-00	06	03

Note: Decimal points have been omitted.

attendance expressed as a percentage of the enrollment. Correlations between DELTA and these variables are given in Table 9, again by subtest and type of school. Only five of the correlations given in the table were significant (all at a probability level less than .05, and all within K-3 schools for the 1983-84 study year).

Correlations Between DELTA and Faculty Characteristics. The final set of variables with which we were concerned was that involving the faculty makeup of the schools. These were also viewed as contextual variables and included the sex and ethnic percentages of faculty, their median age and experience, their median days absent, and the schools' pupil-teacher ratio. Correlations between DELTA and these variables are given in Table 10. The table supports the conclusion that the individual DELTAs were independent of differences in faculty composition among schools.

On the basis of the preceding analyses we concluded that, at the individual student level, our measure of achievement gain was independent of school, faculty, and student organizational constraints. This was an important conclusion, for if the DELTAs were found to correlate highly with these variables their effectiveness as a differential measure of schools ability to affect achievement growth independent of these variables would be compromised.

Among School Differences. While we did not want differences among schools on the variables described above to correlate with the components of our ranking statistic, this did not mean that we did not want the DELTAs to be insensitive to differences among schools in their ability to promote individual achievement. On the contrary, under an assumption that schools differ in terms of their success in fostering achievement, we expected the DELTAs to differentiate among schools. Table 11 displays the percentages of variance in DELTAs due to differences among schools obtained from an analysis of variance for each subtest and grade level. Except for the noted exceptions all entries in the table were significant, although the differences in attributable percentages of variance tended to vary widely across grade levels and subtests and in some instances were appreciably low.

Since the DELTAs were shown to be uncorrelated with various organizational constraints we concluded that the significant, among school differences were due to other factors. These, collectively, are what we have chosen to call school effectiveness.

School Ranking Phase

The next phase of the analysis was to average the DELTAs over subtests and grade levels within schools to yield the intermediate statistics, MEAN(DELTA)s. Then, using each schools standard error of its MEAN(DELTA), the primary ranking statistics, LB(DELTA)s, the lower bounds of the confidence interval about each school's mean, were computed. In addition, for the second and third year of the study, the percentages of students exceeding one, individually-computed, standard error of expectation,

Table 9

Correlations Between DELTA and Various
Enrollment and Attendance Variables

Enroll/Attend Variables	READING '84	READING '85	MATHEMATICS '84	MATHEMATICS '85	LANGUAGE '84	LANGUAGE '85
K-3 Schools						
Enrollment	04	04	-01	02	01	-02
Percent White	18*	07	20*	04	16	11
Percent Black	-16	-09	-15	-10	-18*	-11
Percent Hispanic	02	05	-01	09	07	04
Percent Chapter I	-16	-06	-20*	-01	-11	-08
Percent Reduced Lunch	-17	-10	-22*	-08	-17	-16
Percent LEP	03	05	-01	08	07	04
Percent ADA	03	06	17	07	14	06
4-6 Schools						
Enrollment	01	-03	-03	-01	04	11
Percent White	11	15	06	09	11	03
Percent Black	-10	-17	-04	08	-06	-05
Percent Hispanic	-01	11	-06	00	-11	08
Percent Reduced Lunch	-12	-11	-07	-07	-12	03
Percent LEP	-01	08	-07	03	-09	06
Pct ADA	-09	-10	-04	-10	-06	-17
K-6 Schools						
Enrollment	02	-07	-00	-02	02	-03
Percent White	01	10	-00	05	02	04
Percent Black	-00	-08	00	-02	-03	-03
Percent Hispanic	-01	-00	-01	-03	-00	-01
Percent Reduced Lunch	-02	-12	-03	-08	-03	-07
Percent LEP	-01	-01	-00	-04	-00	-02
Percent ADA	01	04	03	07	03	06

(continued)

Table 9 (continued)

Correlations Between DELTA and Various
Enrollment and Attendance Variables

Enroll/Attend Variables	READING '84	READING '85	MATHEMATICS '84	MATHEMATICS '85	LANGUAGE '84	LANGUAGE '85
7-8 Schools						
Enrollment	-03	-05	-08	-08	-10	-07
Percent White	07	10	09	13	07	05
Percent Black	-07	-11	-03	-09	-06	-04
Percent Hispanic	03	06	-04	02	02	01
Percent Reduced Lunch	-04	-04	-06	-04	-05	-05
Percent LEP	02	04	-05	01	02	01
Percent ADA	01	00	04	02	03	04
9-12 Schools						
Enrollment	01	-02	-02	-06	-09	-06
Percent White	03	02	-05	02	04	02
Percent Black	-03	-02	-03	-04	-06	-06
Percent Hispanic	-01	00	03	03	03	06
Percent Reduced Lunch	00	-01	09	06	-01	07
Percent LEP	03	02	05	06	09	11
Percent ADA	05	01	-02	-07	-02	-05

Note: Decimal points have been omitted.
* p .05

Table 10

Correlations Between DELTA and Various Teacher-related Variables

Teacher Variables	READING '84	READING '85	MATHEMATICS '84	MATHEMATICS '85	LANGUAGE '84	LANGUAGE '85
K-3 Schools						
Percent Male	-02	01	01	02	-03	01
Percent White	05	-04	10	-06	02	-03
Percent Black	-07	-05	-08	-06	-15	-03
Percent Hispanic	02	05	-00	08	09	03
Percent MA or Higher	05	03	09	08	04	05
Median Experience	10	06	12	05	04	08
Median Age	12	02	09	01	10	05
Median Days Absent	-08	00	-13	00	-15	03
P/T Ratio	-02	02	04	05	-11	02
4-6 Schools						
Percent Male	00	05	-02	-00	08	-04
Percent White	06	00	15	01	10	-11
Percent Black	-08	-02	-11	-00	11	12
Percent Hispanic	-01	05	-10	02	06	06
Percent MA or Higher	-02	-07	-06	-05	07	-02
Median Experience	00	05	-14	-03	09	-09
Median Age	02	06	-08	-03	06	-09
Median Days Absent	03	-02	02	01	05	-14
P/T Ratio	01	07	-08	-00	04	-04
K-6 Schools						
Percent Male	-01	-02	-04	-04	-02	-03
Percent White	00	04	-02	-01	01	03
Percent Black	-03	-04	-02	03	-01	-05
Percent Hispanic	03	02	03	-03	00	03
Percent MA or Higher	02	06	03	03	03	01
Median Experience	04	05	01	03	02	04
Median Age	03	05	-01	01	01	01
Median Days Absent	-03	-05	-07	-09	-06	-07
P/T Ratio	00	01	03	00	-00	06

(continued)

Table 10 (continued)

Correlations Between DELTA and Various Teacher-related Variables

Teacher Variables	READING '84	READING '85	MATHEMATICS '84	MATHEMATICS '85	LANGUAGE '84	LANGUAGE '85
7-8 Schools						
Percent Male	-01	-03	-00	-03	-00	-00
Percent White	06	08	03	01	06	06
Percent Black	-06	-09	-04	-04	-05	-03
Percent Hispanic	02	07	02	07	00	-00
Percent MA or Higher	-01	02	-07	07	02	05
Median Experience	-01	-01	02	-01	02	03
Median Age	-02	-02	02	-01	03	03
Median Days Absent	-05	-05	-09	-06	-06	-04
P/T Ratio	-05	-05	-07	-07	-12	-07
9-12 Schools						
Percent Male	-03	-01	-06	01	-08	01
Percent White	04	02	-03	-01	08	02
Percent Black	-06	-03	01	-01	-05	-05
Percent Hispanic	07	03	03	06	-09	09
Percent MA or Higher	04	00	-00	01	01	-01
Median Experience	04	03	01	03	05	02
Median Age	08	05	06	03	07	05
Median Days Absent	-07	-04	-05	-06	-02	-10
P/T Ratio	-04	-03	-07	-02	-03	-80

Note: Decimal points have been omitted.

Table 11

Percentages of Variance in DELTAs
Due to Differences among Schools

Grade Level	READING		MATHEMATICS		LANGUAGE	
	1984	1985	1984	1985	1984	1985
2	18.9	10.5	19.0	16.4	26.3	8.7
3	16.0	13.4	19.1	12.9	28.8	21.2
4	7.7	9.3	18.9	14.9	14.4	16.1
5	10.1	7.5	19.9	14.4	10.2	11.3
6	8.3	9.5	13.3	22.2	8.0	13.2
7	3.3	4.1	5.8	9.8	8.0	4.3
8	1.9[a]	3.5	9.3	6.7	7.2	2.9
9	3.5	2.1	11.1	8.6	32.2	12.8
10	3.5	2.0	4.2	3.2	26.8	5.1
11	2.3	1.7[b]	2.0	0.7[b]	24.9	3.4

Note: All entries are significant at p .01 except as noted.

[a]Significant at p .05.

[b]Not significant.

Sig(GAIN), were also computed; although ranks were actually based upon LB(DELTA).

Schools were then ranked-ordered within type of school configuration. To enhance the interpretability of the LB(DELTA) statistics within school type, one further standardization was performed. Within each type of school, LB(DELTA)s were transformed to a mean of 0.0 and a standard diviation of 10.0. The final results over three years of employing these procedures are given later in Tables 16 through 20. However, before considering those tables it is useful to examine the relationships between various school contextual variables and schools' LB(DELTA) statistics. Many of these variables are the same as those we examined in relation to the individual DELTAs only here their association with group-level statistics are investigated.

Correlations Between Ranking Statistics
and Aggregated Characteristics of Schools'
Student Populations

The first set of contextual variables are those related to schools' student populations: size of enrollment, percentages of students by race, percentages of students served by Chapter I programs (for K-3 schools), percentages of students receiving free or reduced lunch stipends (our proxi measure of socioeconomic status), percentages of limited English proficient (LEP) students, and schools' average daily attendance expressed as a percentage of enrollment. Correlations between these variables and our ranking statistics are given in Table 12 by type of school.

Primary Centers (Grades K thru 3). In the 1982-83 study year none of the correlations between MEAN(DELTA) and LB(DELTA) and our set of student contextual variables were significant. This led us to the conclusion that the ranking statistics were independent of differences in schools' student composition. Since then, however, the situation has apparently changed. In 1983-84, the year in which the ranking statistics were used to award merit stipends, correlations have increased dramatically. In particular, a significant positive correlation was observed between the statistics and the percentage of white students in the schools, and a significant negative correlation occurred between the statistics and both the percentage of black students and the percentage of students receiving free or reduced lunch benifits. In addition the correlation between SigGAIN and the percentage of students being served by Chapter I was marginally significant. The pattern of correlations observed in 1983-84 was generally preserved in 1984-85 where, again, significant correlations were found between the ranking statistics and percent white, percent black, percent receiving free/reduced lunch benefits, and percent being served by Chapter I.

The actual number of significant correlations in the table is, by itself, not particularly meaningful in that the demographic variables involved are all highly correlated among each other. In more general terms, what the table implies is a rather strong relationship between the ranking statistics and the schools' overall level of economic

Table 12

Correlations Between School Ranking Statistics and Characteristics of Schools' Student Populations

Student Characteristics	1982-83 LB$_{DEL}$	1983-84 LB$_{DEL}$	1983-84 SigGAIN	1984-85 LB$_{DEL}$	1984-85 SigGAIN
(K-3 Schools (N_{83} = 38; N_{84} = 40; N_{85}=31)					
Enrollment	07	-00	-08	09	-10
Percent White	31	63**	52*	46**	59**
Percent Black	-32	-52**	-43*	-57**	-59**
Percent Hispanic	09	-01	-01	31*	19
Percent Chapter I	-26	-19	-31*	-28	-50**
Percent Reduced Lunch	-31	-64**	-50*	-50**	-60**
Percent LEP	—[a]	-03	-03	26	17
Percent ADA	09	27	25	13	23
(4-6 Schools (N_{83} = 7; N_{84} = 7; N_{85}=8)					
Enrollment	-52	19	02	28	-01
Percent White	-06	70	73*	59	68*
Percent Black	22	-57	-69*	-66	-72
Percent Hispanic	-81**	-41	-07	36	27
Percent Reduced Lunch	-11	-27	-69	-41	-53
Percent LEP	—	-50	-33	32	12
Percent ADA	32	-64	-77*	-84**	-69*
K-6 Schools (N_{83} = 79; N_{84} = 80; N_{85} = 88)					
Enrollment	08	-02	-09	-17	-17
Percent White	-23	02	02	38**	28**
Percent Black	33**	-02	-01	-19	-12
Percent Hispanic	-19	-00	00	-10	-12
Percent Reduced Lunch	-13	-23*	-10	-50**	-34**
Percent LEP	—	-02	-01	-19	-17
Percent ADA	27*	34**	26*	22*	17

(continued)

Table 12 (continued)

Correlations Between School Ranking Statistics and Characteristics of Schools' Student Populations

Student Characteristics	1982-83	1983-84		1984-85	
	LB_{DEL}	LB_{DEL}	SigGAIN	LB_{DEL}	SigGAIN
	7-8 Schools (N_{83} = 23; N_{84} = 23; N_{85} = 24)				
Enrollment	-32	-56**	-61**	-54**	-61**
Percent White	07	32	28	35	40**
Percent Black	11	-22	-19	-33	-27
Percent Hispanic	-23	-00	00	12	01
Percent Reduced Lunch	-25	-09	-03	-07	-10
Percent LEP	—	-10	-08	05	-04
Percent ADA	42**	31	30	37	35
	9-12 Schools (N_{83} = 25; N_{84} = 26; N_{85} = 26)				
Enrollment	04	-43*	-46*	-51**	-22
Percent White	08	-03	09	-23	13
Percent Black	08	-01	-12	19	-17
Percent Hispanic	00	03	04	-02	07
Percent Reduced Lunch	02	08	-01	38	-16
Percent LEP	—	-05	00	14	10
Percent ADA	-09	16	-27	04	07

Note: Decimal points have been omitted.
*p .05
**p .01

[a]We did not include LEP status in 1982-83.

disadvantagement. The more economically disadvantaged a school's student population is the lower it tends to fare in terms of the ranking statistics.

As a partial check on this conclusion, we partialed the correlations between the ranking statistics and the percentage of students receiving free or reduced lunch stipends in 1984-85 out of the remaining correlations between the demographic variables and ranking statistics. In that analysis the correlations with both percent white and the percent being served by Chapter I programs vanished. In addition the correlations with percent black, while remaining significant and negative, were attenuated (-.41 and -.38 with LB(DELTA) and SigGAIN, respectively). At the same time the correlations with percent Hispanic became significantly negative (-.43 and -.34).

Intermediate Centers (Grades 4 thru 6). Due to the very small number of intermediate centers conclusions based upon the correlational results for these schools are speculative at best. In 1982-83 we found a significant correlation between the ranking statistics and schools' percentage of Hispanic students. That result appeared to derive from two schools both of which had a higher-than-average percentage of Hispanic students and both of which ranked at the bottom of the intermediate center distribution. However, the absence of significant correlation with this factor in 1983-84 and 1984-85 suggests that the high correlation observed in 1982-83 may have been spurious. In the last two years significant correlations have been observed between the ranking statistics and schools' percentages of white students and schools average daily attendance expressed as a percentage of enrollment. Curiously, this latter correlation has been negative, leading to the unsupported implication that higher rates of absenteeism among students lead to a higher ranking in terms of effectiveness.

Elementary Schools (Grades K thru 6). A significant positive correlation was observed between the ranking statistics and schools' percentage of black students in 1982-83. The corresponding negative correlations with percent white was marginally significant. In 1983-84 no significant correlation with ethnic percentages was observed. However, in 1984-85 the correlations with percent white were significant. In addition, in the last two years, the correlations between the ranking statistics and the percentages of students receiving free or reduced lunch benefits have been significant.

Again, as in the case of primary centers, there appeared to be a general relationship between the ranking statistics and the schools overall level of economic disadvantagement. When we controlled for differences in the percentages of students receiving free or reduced lunch stipends (in 1984-85) the correlations with percent white vanished and the remaining correlations all were attenuated.

Middle Schools (Grades 7 and 8). In 1982-83 only the correlation between LB(DELTA) and percent average daily attendance was significant. In 1983-84 and 1984-85 this correlation was not significant. In the last

two years the correlations between all ranking statistics and schools' size of enrollment have been significant, with larger schools apparently faring less well on the ranking statistics. Additionally, in 1984-85 a significant correlation was obtained between the percentage of students making significant gains and the percentage of white students.

The comments made earlier regarding the relationship between the ranking statistics and levels of disadvantagement do not appear to apply to secondary schools. A similar partial correlational analysis on middle schools did not appreciably affect the remaining correlations.

High Schools (Grades 9 thru 12). Among high schools, the only variable that correlated significantly with either of the ranking statistics was size of school enrollment. In both 1983-84 and 1984-85 larger schools tended to have lower LB(DELTA)s, an outcome that was not necessarily anticipated since larger schools were expected to have tighter confidence intervals. In actuality larger schools had lower LB(DELTA)s because they tended to have lower MEAN(DELTA)s owing to the fact that fewer of their students accomplished significant gains beyond their expectations (SigGAIN).

Summary. From an analysis of the correlations between the ranking statistics and the contextual variables related to schools' student populations it appears obvious that differences in the characteristics of schools' student compositions differentially affect schools effectiveness in demonstrating significant gains in student achievement. While the overall level of deprivation is implicated in the findings for elementary schools (grades K - 6), the sheer size of enrollment appears to play a role in the effectiveness of secondary schools (grades 7 - 12). Just how these contextual factors exert their effects has not been investigated.

Correlations Between Ranking Statistics and Aggregated Characteristics of Schools' Faculties

The next set of contextual variables we considered were those related to schools' faculty composition: percentages of male teachers, percentages of teachers by race, percentages of teachers with degrees beyond the baccalaureate, median age and experience, median teacher absenteeism, and the schools' pupil-teacher ratios. These correlations are given in Table 13, again by type of school.

Primary Centers (Grades K thru 3). While no significant correlations were found between the ranking statistics and our various measures of faculty characteristics in 1982-83, significant correlations were observed in both 1983-84 and 1984-85. Specifically, a significant negative correlation was found between LB(DELTA) and the percentage of male faculty members in 1983-84 and 1984-85. Furthermore, while the correlation between LB(DELTA) and percent white faculty was positive, though not significant, in 1983-84 it was significantly negative in 1984-85. Median age of faculty, not measured in 1982-83, was positivly correlated with the ranking statistics in both 1983-84 and 1984-85. Median teacher-days

absent was negatively correlated in 1983-84, but uncorrelated in 1984-85. On the other hand, median years experience was positively correlated in 1984-85 whereas the correlation in 1983-84 was not significant.

As before, we pursued an analysis of various partial correlations involving those factors that were significant in 1984-85. The zero-order correlation between percent male teachers and median age of teachers was -.64. When the influence of median age was removed the correlations between percent male and the ranking statistics vanished. That analysis also attenuated the correlations between percent white and the ranking statistics. The correlation between percent Hispanic teachers, on the other hand, was not affected by controlling for any of the other variables in the set. Nevertheless, in view of the small percentages of hispanic teachers in general (9.25% on average) we suspect that this correlation may be spurious. On the other hand, median age and experience of teachers appeared to have independent positive effects since neither was appreciably attenuated by controlling for the other.

Intermediate Centers (Grades 4 thru 6). Again, due to the small number of schools involved, deriving meaning from the correlations given in this section of the table should be done with caution. Only the 1983-84 correlations between the ranking statistics and the highly correlated variables, percent white (positive) and percent black (negative), were significant.

Elementary Schools (Grades K thru 6). Again, while no significant correlations were observed in 1982-83, significant negative correlations were observed, in 1983-84 and 1984-85, between the ranking statistics and median teacher days absent. Schools with higher rates of teacher absenteeism fared less well in attaining higher adjusted student achievement levels. These correlations could not be attributed to indirect effects due to any of the other variables in the set of teacher-related factors.

There was also a significant negative correlation between percent male teachers and LB(DELTA) in both 1982-83 and 1984-85. However, the percentages of male teachers in elementary schools was, on average, only 14.6 percent. It is quite possible that this correlation was due to effects on non-random assignment of a relatively small number of male teachers. In short, this correlation is probably spurious.

Middle Schools (Grades 7 and 8). The only significant correlations in this section of Table 13 were those between the ranking statistics and the schools' pupil-teacher ratio. Schools with higher pupil-teacher ratios were less successful in affecting higher rates of student achievement. This is consistent with the finding of negative correlations between the ranking statistics and size of enrollment in middle schools given earlier.

High Schools (Grades 9 thru 12). Among high schools the percentage of significant, individual student gains in achievement was influenced, in 1983-84, by both the schools' percentage of teachers with higher degrees and the pupil-teacher ratio. In each case the correlation was negative.

Table 13

Correlations Between School Ranking Statistics and Characteristics of Schools' Faculty Populations

Faculty Characteristics	1982-83 LB$_{DEL}$	1983-84 LB$_{DEL}$	1983-84 SigGAIN	1984-85 LB$_{DEL}$	1984-85 SigGAIN
(K-3 Schools (N_{83} = 38; N_{84} = 40; N_{85}=31)					
Percent Male	-07	-35*	-14	-34	-14
Percent White	07	22	21	-36*	-10
Percent Black	-08	-29	-22	-14	-16
Percent Hispanic	01	-15	-18	35*	17
Percent MA or Higher	—[a]	-10	-03	17	34
Median Experience	02	29	14	54**	36*
Median Age	—[b]	39*	34*	51**	23
Median Absenteeism	-03	-32*	-37*	29	03
P/T Ratio	-20	-15	-16	15	15
4-6 Schools (N_{83} = 7; N_{84} = 7; N_{85} = 8)					
Percent Male	-64	-35	03	15	-03
Percent White	28	71*	74*	-41	-02
Percent Black	-11	-76*	-81**	38	08
Percent Hispanic	-52	—[c]	—	42	20
Percent MA or Higher	—	36	34	00	-45
Median Experience	-66	-50	-42	10	-21
Median Age	—	-22	-12	10	-20
Median Absenteeism	63	35	34	-20	-24
P/T Ratio	-17	28	28	-00	06
K-6 Schools (N_{83} = 79; N_{84} = 80; N_{85} = 88)					
Percent Male	-31**	-14	-15	-22*	-18
Percent White	11	03	10	06	11
Percent Black	15	-16	-21	02	-02
Percent Hispanic	-19	18	16	-07	-08
Percent MA or Higher	—	-16	-05	16	12
Median Experience	01	16	07	19	11
Median Age	—	09	00	11	07
Median Absenteeism	-00	-36**	-30**	-31**	-20
P/T Ratio	09	20	15	10	09

(continued)

Table 13 (continued)

Correlations Between School Ranking Statistics and Characteristics of Schools' Faculty Populations

Faculty Characteristics	1982-83 LB$_{DEL}$	1983-84 LB$_{DEL}$	1983-84 SigGAIN	1984-85 LB$_{DEL}$	1984-85 SigGAIN
7-8 Schools (N_{83} = 23; N_{84} = 23; N_{85} = 24)					
Percent Male	33	08	14	-16	-09
Percent White	05	24	32	12	-08
Percent Black	-06	-27	-25	-15	-14
Percent Hispanic	-04	-12	-08	07	24
Percent MA or Higher	—	36	38	-03	08
Median Experience	34	02	-06	03	-10
Median Age	—	19	21	-02	-13
Median Absenteeism	23	-20	-15	-15	-20
P/T/Ratio	-38	-63**	-70**	-50**	-65**
9-12 Schools (N_{83} = 25; N_{84} = 26; N_{85} = 26)					
Percent Male	-18	-25	-24	15	16
Percent White	12	03	15	-07	-01
Percent Black	-21	-17	-29	-02	-11
Percent Hispanic	32	34	40	08	11
Percent MA or Higher	—	-29	-38	23	15
Median Experience	23	11	09	31	13
Median Age	—	32	25	30	10
Median Absenteeism	-21	-33	-36	-09	-17
P/T Ratio	-08	-33	-59**	-24	04

Note: Decimal points have been omitted.
*p .05
**p .01

[a]We did not compute percentages of teachers with higher degrees in 1982-83.

[b]We did not include teachers' median age in 1982-83.

[c]Only two of the seven 4-6 schools had measurable percentages of Hispanic teachers in 1983-84.

Correlations with Current and Previous Year's Mean Levels of Achievement

The final set of contextual variables we consider are the schools' mean achievement levels in reading, mathematics, and language, for each study year and the year preceding each study year. Means have been taken over schools' total enrollment and, thus, include some students in addition to those participating in the study. The correlations between these variables and the ranking statistics are given in Table 14.

Over half the correlations in the table were large enough to be statistically significant. This included a generous number of correlations with previous year achievement -- a finding that at first seems curious since previous year's achievement was statistically removed from the computation of the individual DELTAs. However, it is well known from research on analyzing multi-level data (Cf. Borgatta & Jackson, 1979; Burstein, 1980) that intercorrelations among components of collectives do not imply correlations among the collectives themselves. In fact the correlations in Table 14, especially those involving SigGAIN, tend to confirm Burstein's (1980, p. 197) assertion that collective properties of educational groups affect individual levels of achievement. More significant achievement was clearly associated with the overall mean achievement level of schools. Burstein and others (references given in Burstein, 1980) have suggested several ways in which collectives may operate to produce group effects net of individual effects. While we have not pursued these explanations at this time, they are certainly worthy of further investigation.

School Rankings

The actual distributions of school ranks for each study year are given, by type of school configuration, in Tables 16 through 20. The effectiveness indices are LB(DELTA)s transformed to have a mean of 0.0 and a standard deviation of 10 within each type of school. Entries are ordered by 1984-85 rank. Some additional information, for the 1984-85 study year, is given as well. This includes the percentages of students making positive GE gains beyond their expectation (POS), percentages of students exceeding school mean expectations (> GRP), and percentages of students exceeding their own expectations by at least one standard error of expectation (SIG) -- what we have been calling SigGAIN. Also, the percentages of students scoring equal to or above the national 50th percentile in reading, mathematics, and language in 1985 is provided.

Year-by-year correlations of among school LB(DELTA)s and among school ranks are given in Table 15 by type of school. As can be seen, there was a general tendency, especially among schools having higher grade levels, for schools to preserve their relative standing from one year to the next.

Table 15

Year-to-year Correlations Among LB(DELTA)s and School Ranks

	LB_{DEL}		RANK	
	1983	1984	1983	1984
K-3 Schools				
1984	.667**		.610**	
1985	.448**	.530**	.357*	.403*
4-6 Schools				
1984	.838**		.697*	
1985	.152	.440	-.040	.190
K-6 Schools				
1984	.488**		.474**	
1985	.010	.313**	.201	.348**
7-8 Schools				
1984	.866**		.736**	
1985	.670**	.410*	.355*	.223
9-12 Schools				
1984	.878**		.734**	
1985	.775**	.792**	.821**	.852**

*p .05
**p .01

Table 14

Correlations Between Ranking Statistics and Mean Achievement Levels in the Study Year and the Year Preceding the Study Year

	1982-83 Study Year						1983-84 Study Year						1984-85 Study Year					
	Reading		Mathematics		Language		Reading		Mathematics		Language		Reading		Mathematics		Language	
	82	83	82	83	82	83	83	84	83	84	83	84	84	85	84	85	84	85
K-3 Schools (N_{83} = 38; N_{84} = 40; N_{85} = 31)																		
LB_{DEL}	24	50**	30	28	17	56**	46**	77**	31**	66**	43**	76**	28	41*	12	33	27	31
SigGAIN							46**	74**	39**	67**	43**	72**	46**	58**	34*	58**	45**	45**
4-6 Schools (N_{83} = 7; N_{84} = 7; N_{85} = 8)																		
LB_{DEL}	51	57	54	66	53	62	75*	74*	71*	73*	76*	76*	78**	81**	71*	78*	72*	73*
SigGAIN							66	69*	64	67*	67*	67*	90**	93**	87**	91**	87**	89**
K-6 Schools (N_{83} = 79; N_{84} = 80; N_{85} = 88)																		
LB_{DEL}	13	27*	13	24*	53**	62**	26*	40**	21	37**	32**	42**	21	45**	12	38**	21	48**
SigGAIN							21	32**	13	29**	26*	32**	23*	47**	13	38**	20	47**
7-8 Schools (N_{83} = 23; N_{84} = 23; (N_{85} = 24)																		
LB_{DEL}	08	10	09	13	06	16	01	23	07	36	09	32	28	42*	39*	52**	32	41*
SigGAIN							-21	10	-14	24	-17	19	14	31	27	43*	16	29*
9-12 Schools (N_{83} = 25; N_{84} = 26; N_{85} = 26)																		
LB_{DEL}	14	31	15	46*	15	41*	26	54**	42*	68**	34	67**	16	18	21	27	34	39*
SigGAIN							39*	65**	53**	78**	48**	76**	52**	53**	68**	72**	61**	65**

Note: Decimal points have been omitted. *$p \leq .05$. **$p \leq .01$.

Table 16

1984-85 School Effectiveness Indices and Related Statistics
K-3 Schools

SCHOOL	EFFECTIVNESS INDICES 1985 INDEX	1985 RNK	1984 INDEX	1984 RNK	1983 INDEX	1983 RNK	PERCENT GAINS POS	PERCENT GAINS > GRP	PERCENT GAINS SIG	PCT. GEQ 50'TH PCTILE. R	PCT. GEQ 50'TH PCTILE. M	PCT. GEQ 50'TH PCTILE. L
SCHOOL NUMBER 1	26.35	(1)	32.36	(1)	25.43	(1)	77.37	73.75	42.08	83.77	78.43	88.31
SCHOOL NUMBER 2	19.95	(2)	2.40	(10)	17.08	(3)	78.08	69.17	32.87	77.10	75.57	83.97
SCHOOL NUMBER 3	17.35	(3)	11.28	(4)	14.26	(4)	61.17	56.76	30.88	54.94	64.63	72.05
SCHOOL NUMBER 4	12.14	(4)	4.80	(9)	-2.17	(19)	61.73	54.78	25.21	80.95	78.57	84.34
SCHOOL NUMBER 5	12.00	(5)	12.32	(3)	-2.95	(20)	65.73	56.64	21.67	78.53	81.60	84.05
SCHOOL NUMBER 6	8.27	(6)	-2.69	(16)	-1.14	(16)	53.87	50.32	15.80	50.00	65.49	66.28
SCHOOL NUMBER 7	5.32	(7)	6.81	(7)	-3.11	(21)	51.09	46.50	18.55	68.13	68.33	79.53
SCHOOL NUMBER 8	4.13	(8)	-1.98	(15)	7.75	(7)	47.59	44.65	15.37	59.03	60.87	71.83
SCHOOL NUMBER 9	3.22	(9)	7.96	(5)	3.27	(8)	47.08	43.82	17.24	57.14	57.97	70.67
SCHOOL NUMBER 10	NA	(**)	-15.46	(31)	-14.88	(30)						
SCHOOL NUMBER 11	NA	(**)	1.00	(12)	-11.73	(28)						
SCHOOL NUMBER 12	2.96	(10)	7.69	(6)	-0.74	(14)	44.05	40.69	15.66	59.29	68.39	73.93
SCHOOL NUMBER 13	2.18	(11)	1.38	(11)	1.83	(10)	46.21	42.72	13.18	61.20	73.33	75.26
SCHOOL NUMBER 14	0.33	(12)	-5.01	(19)	-1.40	(18)	44.23	39.40	12.45	44.11	66.33	71.03
SCHOOL NUMBER 15	-0.85	(13)	-9.28	(27)	0.77	(12)	37.47	33.72	8.89	34.06	50.44	57.46
SCHOOL NUMBER 16	-1.08	(14)	-17.17	(33)	-10.56	(27)	37.35	32.18	11.49	33.04	62.28	52.17
SCHOOL NUMBER 17	-1.39	(15)	-10.37	(29)	-0.82	(15)	42.45	36.42	9.04	40.48	48.63	47.88
SCHOOL NUMBER 18	-1.61	(16)	0.65	(13)	-6.02	(24)	40.46	36.36	15.54	54.29	59.20	61.16
SCHOOL NUMBER 19	-1.71	(17)	-5.16	(20)	2.52	(9)	39.38	36.03	10.61	55.48	64.64	75.80
SCHOOL NUMBER 20	-2.21	(18)	5.48	(8)	19.54	(2)	40.32	33.87	7.74	56.32	50.53	71.58
SCHOOL NUMBER 21	-2.60	(19)	-1.44	(14)	-5.28	(22)	38.97	34.94	11.82	41.44	57.08	58.18
SCHOOL NUMBER 22	-3.68	(20)	-6.72	(22)	-9.55	(25)	37.88	34.91	7.17	49.32	53.15	68.24
SCHOOL NUMBER 23	-3.90	(21)	-5.40	(21)	-14.36	(29)	39.18	35.51	10.20	33.16	47.28	61.50
SCHOOL NUMBER 24	-4.02	(22)	-9.20	(26)	-1.22	(17)	39.00	35.10	11.70	43.03	45.73	64.24
SCHOOL NUMBER 25	-5.35	(23)	-4.29	(17)	-21.37	(32)	38.72	33.33	9.76	62.10	68.04	71.69
SCHOOL NUMBER 26	-5.47	(24)	14.06	(2)	-0.15	(13)	40.24	36.91	11.19	63.23	65.54	68.58
SCHOOL NUMBER 27	-5.67	(25)	-15.60	(32)	9.18	(6)	42.25	37.55	12.20	41.80	64.32	47.34
SCHOOL NUMBER 28	-6.08	(26)	-14.19	(30)	-10.44	(26)	34.88	32.09	8.37	34.25	39.89	49.45
SCHOOL NUMBER 29	-7.54	(27)	-9.76	(28)	-16.65	(31)	32.92	29.47	6.30	34.06	43.08	51.40
SCHOOL NUMBER 30	-9.42	(28)	-9.04	(25)	1.36	(11)	26.82	23.03	4.87	46.95	38.71	60.97
SCHOOL NUMBER 31	-11.92	(29)	-7.87	(24)	-5.48	(23)	33.11	29.13	6.29	58.05	59.15	73.73
SCHOOL NUMBER 32	-17.81	(30)	-4.57	(18)	11.08	(5)	22.44	18.75	1.98	22.30	26.37	46.26
SCHOOL NUMBER 33	-21.89	(31)	-7.38	(23)	NA	(**)	28.39	24.69	8.64	69.64	80.36	78.57

Table 17

1984-85 School Effectiveness Indices and Related Statistics
4-6 Schools

	EFFECTIVNESS INDICES											
	1985		1984		1983		PERCENT GAINS			PCT. GEQ 50'TH PCTILE.		
SCHOOL	INDEX	RNK	INDEX	RNK	INDEX	RNK	POS	> GRP	SIG	R	M	L
SCHOOL NUMBER 1	23.38	(1)	17.57	(1)	10.32	(2)	74.92	67.23	30.48	96.97	100.00	100.00
SCHOOL NUMBER 2	7.01	(2)	14.37	(2)	3.20	(4)	58.11	53.63	17.62	51.75	64.59	69.58
SCHOOL NUMBER 3	1.93	(3)	-6.48	(5)	-17.42	(8)	48.55	43.81	13.75	30.16	53.17	56.08
SCHOOL NUMBER 4	-0.64	(4)	4.14	(3)	1.99	(5)	47.87	43.52	12.84	28.64	52.74	65.47
SCHOOL NUMBER 5	-0.79	(5)	NA	(**)	NA	(**)	46.35	43.56	11.27	22.04	40.64	57.96
SCHOOL NUMBER 6	-2.06	(6)	-8.93	(8)	-14.64	(7)	45.30	40.24	11.97	31.75	38.70	51.52
SCHOOL NUMBER 7	-6.39	(7)	-7.85	(7)	12.35	(1)	43.08	36.63	10.82	32.61	60.11	70.65
SCHOOL NUMBER 8	-10.04	(8)	-5.48	(4)	1.08	(6)	37.93	35.22	9.98	28.65	55.26	58.21
SCHOOL NUMBER 9	-12.40	(9)	-7.36	(6)	3.22	(3)	34.40	30.60	5.57	32.47	44.35	58.43

Table 18

1984-85 School Effectiveness Indices and Related Statistics
K-6 Schools

SCHOOL	EFFECTIVNESS INDICES 1985 INDEX	RNK	1984 INDEX	RNK	1983 INDEX	RNK	PERCENT GAINS POS	> GRP	SIG	PCT. GEQ 50'TH PCTILE. R	M	L
SCHOOL NUMBER 1	25.59	(1)	NA	(**)	NA	(**)	67.92	65.43	34.81	47.47	67.28	74.96
SCHOOL NUMBER 2	22.75	(2)	36.20	(1)	7.99	(9)	69.10	64.71	35.39	84.32	88.43	91.68
SCHOOL NUMBER 3	18.43	(3)	16.08	(6)	NA	(**)	69.29	58.47	26.02	72.43	84.43	90.14
SCHOOL NUMBER 4	17.04	(4)	28.09	(2)	29.19	(2)	67.05	61.51	23.16	77.92	96.35	95.32
SCHOOL NUMBER 5	16.69	(5)	-0.65	(48)	-2.01	(46)	67.04	58.72	24.64	67.45	73.42	79.53
SCHOOL NUMBER 6	16.45	(6)	11.32	(12)	NA	(**)	67.89	62.63	31.05	82.73	81.82	90.00
SCHOOL NUMBER 7	15.51	(7)	0.75	(39)	NA	(**)	65.00	56.13	26.81	70.87	70.69	79.76
SCHOOL NUMBER 8	15.49	(8)	8.35	(15)	10.11	(6)	66.24	59.87	27.77	69.32	75.41	78.87
SCHOOL NUMBER 9	12.07	(9)	14.01	(8)	5.52	(13)	62.08	57.93	23.88	55.49	63.06	74.32
SCHOOL NUMBER 10	12.01	(10)	17.71	(4)	-1.05	(42)	63.50	57.70	22.76	68.99	81.79	87.61
SCHOOL NUMBER 11	11.84	(11)	-2.95	(55)	-0.42	(38)	63.77	58.76	22.28	65.04	86.59	86.39
SCHOOL NUMBER 12	9.60	(12)	-10.10	(77)	-8.52	(66)	65.28	55.02	17.68	55.64	60.00	77.34
SCHOOL NUMBER 13	9.16	(13)	7.52	(18)	-0.09	(37)	60.27	55.79	21.30	45.47	60.26	68.79
SCHOOL NUMBER 14	8.54	(14)	15.25	(7)	0.80	(32)	60.83	55.63	22.53	60.62	70.77	78.46
SCHOOL NUMBER 15	8.44	(15)	2.02	(34)	-0.08	(36)	59.70	55.48	22.72	44.00	63.74	71.87
SCHOOL NUMBER 16	7.98	(16)	3.16	(30)	6.65	(11)	62.00	55.08	18.75	64.08	76.71	85.41
SCHOOL NUMBER 17	7.95	(17)	-3.66	(58)	4.41	(18)	58.50	51.18	20.84	63.90	72.21	79.08
SCHOOL NUMBER 18	7.72	(18)	1.52	(36)	NA	(**)	60.30	55.34	21.37	57.09	68.21	75.51
SCHOOL NUMBER 19	7.30	(19)	17.87	(3)	-1.90	(45)	59.92	54.39	18.53	56.87	76.69	80.27
SCHOOL NUMBER 20	7.01	(20)	2.02	(34)	5.36	(14)	59.78	53.26	23.03	51.42	68.49	81.18
SCHOOL NUMBER 21	6.99	(21)	3.59	(28)	5.01	(16)	59.56	52.50	18.18	59.71	64.91	75.36
SCHOOL NUMBER 22	6.85	(22)	7.38	(19)	3.27	(22)	56.81	50.75	21.21	56.11	71.99	74.72
SCHOOL NUMBER 23	6.56	(23)	16.96	(5)	NA	(**)	58.91	51.81	19.63	69.67	77.87	79.23
SCHOOL NUMBER 24	6.35	(24)	11.36	(11)	4.19	(20)	58.64	48.92	19.27	54.45	68.24	81.68
SCHOOL NUMBER 25	5.96	(25)	4.66	(27)	NA	(**)	57.93	51.35	21.45	68.74	75.06	80.75
SCHOOL NUMBER 26	5.85	(26)	-3.58	(57)	-4.71	(57)	61.11	54.32	17.59	59.86	68.33	73.81
SCHOOL NUMBER 27	5.60	(27)	6.09	(23)	5.80	(12)	57.37	51.42	20.97	70.21	84.10	84.62
SCHOOL NUMBER 28	5.25	(28)	12.70	(9)	1.36	(29)	56.31	45.26	20.52	38.35	63.24	65.20
SCHOOL NUMBER 29	4.98	(29)	-8.71	(76)	2.09	(27)	58.36	52.10	19.02	46.41	54.92	67.61
SCHOOL NUMBER 30	4.81	(30)	2.88	(33)	-6.67	(62)	55.69	50.21	20.75	59.79	68.74	77.23
SCHOOL NUMBER 31	4.60	(31)	0.43	(41)	0.62	(34)	60.33	51.20	19.95	59.87	65.26	74.68
SCHOOL NUMBER 32	4.53	(32)	-6.38	(68)	-3.07	(51)	56.22	50.43	20.30	62.08	76.68	78.02
SCHOOL NUMBER 33	4.36	(33)	-3.74	(60)	2.55	(25)	55.05	48.88	16.16	57.86	66.51	74.76
SCHOOL NUMBER 34	4.10	(34)	7.89	(17)	12.37	(4)	56.63	50.10	19.27	55.67	76.05	83.40
SCHOOL NUMBER 35	3.97	(35)	0.35	(43)	-2.22	(50)	58.13	51.89	19.51	54.49	66.38	74.37
SCHOOL NUMBER 36	3.71	(36)	-3.84	(61)	-8.70	(67)	55.67	46.17	18.99	42.11	60.16	63.82
SCHOOL NUMBER 37	3.36	(37)	7.93	(16)	NA	(**)	58.74	49.82	15.73	63.23	69.43	76.00
SCHOOL NUMBER 38	3.05	(38)	-5.86	(67)	1.05	(31)	54.86	49.08	19.75	48.75	55.86	65.38
SCHOOL NUMBER 39	1.75	(39)	0.39	(42)	2.96	(23)	54.84	47.50	19.84	55.09	68.96	80.25
SCHOOL NUMBER 40	1.55	(40)	1.00	(38)	-12.76	(70)	51.30	43.71	18.06	43.75	56.13	69.37
SCHOOL NUMBER 41	1.36	(41)	0.60	(40)	-1.56	(44)	53.52	46.90	16.77	45.39	63.26	70.78
SCHOOL NUMBER 42	0.91	(42)	1.41	(37)	-18.18	(73)	52.39	46.59	19.01	43.87	58.73	62.44
SCHOOL NUMBER 43	0.38	(43)	0.13	(45)	5.03	(15)	50.44	45.89	20.17	49.31	62.43	65.55
SCHOOL NUMBER 44	0.16	(44)	-3.70	(59)	NA	(**)	55.03	46.34	13.41	51.53	51.77	66.50
SCHOOL NUMBER 45	0.04	(45)	6.25	(21)	4.33	(19)	53.17	47.79	14.22	51.60	67.49	68.66
SCHOOL NUMBER 46	0.03	(46)	-0.17	(46)	-5.90	(60)	52.78	47.89	18.04	57.08	62.09	66.29

Table 18 (continued)

K-6 Schools

SCHOOL	EFFECTIVNESS INDICES 1985 INDEX	1985 RNK	1984 INDEX	1984 RNK	1983 INDEX	1983 RNK	PERCENT GAINS POS	> GRP	SIG	PCT. GEQ 50'TH PCTILE. R	M	L
SCHOOL NUMBER 1	-0.45	(47)	-3.28	(56)	-0.90	(41)	51.32	46.36	14.87	38.00	53.33	69.05
SCHOOL NUMBER 2	-0.75	(48)	6.12	(22)	NA	(**)	54.31	49.54	13.90	51.99	59.67	74.55
SCHOOL NUMBER 3	-1.51	(49)	-30.25	(85)	-15.44	(71)	52.75	40.57	13.04	53.41	57.95	69.32
SCHOOL NUMBER 4	-1.67	(50)	-8.34	(73)	-2.15	(49)	49.53	42.30	15.84	39.39	54.75	65.83
SCHOOL NUMBER 5	-1.98	(51)	9.07	(13)	10.08	(7)	50.51	46.00	15.49	71.26	82.55	88.65
SCHOOL NUMBER 6	-2.15	(52)	5.15	(26)	-8.91	(68)	48.47	41.94	21.33	37.12	49.42	54.42
SCHOOL NUMBER 7	-2.18	(53)	3.51	(29)	-6.05	(61)	50.96	44.39	16.98	47.55	56.02	68.05
SCHOOL NUMBER 8	-2.49	(54)	5.89	(24)	3.95	(21)	51.60	45.40	14.85	39.42	51.96	65.44
SCHOOL NUMBER 9	-3.07	(55)	-6.45	(69)	-0.61	(39)	49.23	42.11	14.64	49.58	59.96	59.92
SCHOOL NUMBER 10	-3.16	(56)	0.16	(44)	-7.14	(63)	52.12	46.95	11.16	41.81	59.37	64.63
SCHOOL NUMBER 11	-3.45	(57)	-8.42	(74)	-16.27	(72)	50.77	44.98	14.47	56.22	62.93	69.35
SCHOOL NUMBER 12	-3.65	(58)	-4.16	(63)	4.93	(17)	51.50	43.75	13.05	46.81	59.56	71.77
SCHOOL NUMBER 13	-3.68	(59)	NA	(**)	NA	(**)	49.93	46.00	14.40	31.03	42.59	55.57
SCHOOL NUMBER 14	-3.81	(60)	-12.90	(82)	-1.07	(43)	48.49	39.27	14.62	60.51	71.06	68.81
SCHOOL NUMBER 15	-3.82	(61)	-1.17	(49)	7.76	(10)	48.92	43.22	15.59	54.58	61.32	70.60
SCHOOL NUMBER 16	-3.98	(62)	-2.62	(54)	1.17	(30)	48.33	42.36	17.08	47.88	61.15	70.88
SCHOOL NUMBER 17	-3.98	(62)	-11.26	(79)	-3.46	(53)	49.64	43.15	17.54	41.42	62.25	55.08
SCHOOL NUMBER 18	-4.34	(63)	-2.27	(51)	-4.10	(55)	50.27	44.45	13.72	45.72	68.99	70.60
SCHOOL NUMBER 19	-5.57	(64)	-8.56	(75)	-5.67	(59)	48.22	44.35	13.60	48.24	50.82	67.49
SCHOOL NUMBER 20	-6.48	(65)	-5.57	(65)	0.06	(35)	46.16	42.23	13.88	38.87	45.18	57.95
SCHOOL NUMBER 21	-6.87	(66)	-10.65	(78)	-0.64	(40)	45.89	40.64	11.03	32.50	53.63	63.03
SCHOOL NUMBER 22	-7.23	(67)	-2.41	(53)	-5.08	(58)	46.38	42.06	11.54	43.45	51.12	67.25
SCHOOL NUMBER 23	-7.56	(68)	2.00	(35)	-4.18	(56)	44.90	38.93	10.41	47.08	62.93	64.46
SCHOOL NUMBER 24	-10.16	(69)	-6.71	(70)	-4.00	(54)	43.03	36.78	11.27	40.04	55.83	60.49
SCHOOL NUMBER 25	-10.46	(70)	-2.36	(52)	NA	(**)	45.76	39.59	14.48	50.23	53.55	66.51
SCHOOL NUMBER 26	-10.49	(71)	-7.59	(72)	-10.12	(69)	44.72	37.69	9.74	57.70	66.01	63.93
SCHOOL NUMBER 27	-10.51	(72)	-12.73	(81)	-2.02	(47)	44.94	40.02	10.51	51.79	58.81	73.26
SCHOOL NUMBER 28	-10.97	(73)	-18.85	(84)	11.36	(5)	46.07	39.82	10.61	43.09	62.71	62.05
SCHOOL NUMBER 29	-11.25	(74)	-5.49	(64)	NA	(**)	41.04	35.95	12.22	29.32	43.65	51.14
SCHOOL NUMBER 30	-12.30	(75)	3.07	(31)	1.05	(31)	39.32	35.50	8.64	46.03	58.48	65.86
SCHOOL NUMBER 31	-13.44	(76)	8.39	(14)	46.51	(1)	42.38	37.69	12.51	75.14	86.22	85.09
SCHOOL NUMBER 32	-13.68	(77)	6.53	(20)	1.47	(28)	42.17	37.19	11.05	53.58	59.41	67.73
SCHOOL NUMBER 33	-13.91	(78)	-4.11	(62)	-3.08	(52)	41.04	35.81	10.45	30.47	42.71	47.09
SCHOOL NUMBER 34	-15.40	(79)	11.80	(10)	-35.22	(74)	41.74	33.64	11.52	36.99	52.33	55.23
SCHOOL NUMBER 35	-15.49	(80)	-7.13	(71)	2.26	(26)	36.68	32.72	7.62	41.27	45.80	62.17
SCHOOL NUMBER 36	-16.05	(81)	-14.75	(83)	-7.57	(64)	40.20	33.76	9.15	33.06	49.72	57.22
SCHOOL NUMBER 37	-16.37	(82)	5.70	(25)	-2.10	(48)	36.59	32.09	8.70	42.91	59.70	70.06
SCHOOL NUMBER 38	-16.51	(83)	-11.66	(80)	2.73	(24)	38.46	33.84	6.78	37.40	54.76	60.78
SCHOOL NUMBER 39	-16.64	(84)	-0.56	(47)	-7.91	(65)	39.36	30.41	11.72	31.97	43.99	50.17
SCHOOL NUMBER 40	-16.79	(85)	-5.81	(66)	8.41	(8)	39.90	35.71	10.92	46.40	62.94	71.06
SCHOOL NUMBER 41	-19.06	(86)	-2.15	(50)	0.70	(33)	36.26	29.40	10.03	29.06	62.13	51.72
SCHOOL NUMBER 42	-21.29	(87)	3.06	(32)	21.73	(3)	36.45	32.85	11.12	48.65	56.56	68.29

Table 19

1984-85 School Effectiveness Indices and Related Statistics
7-8 Schools

SCHOOL	EFFECTIVNESS INDICES 1985 INDEX	RNK	1984 INDEX	RNK	1983 INDEX	RNK	PERCENT GAINS POS	> GRP	SIG	PCT. GEQ 50'TH PCTILE. R	M	L
SCHOOL NUMBER 1	23.56	(1)	35.51	(1)	11.76	(3)	75.60	65.60	28.80	54.74	68.82	66.67
SCHOOL NUMBER 2	23.08	(2)	14.41	(2)	26.79	(1)	72.66	68.71	32.56	59.80	85.53	90.52
SCHOOL NUMBER 3	8.99	(3)	NA	(**)	NA	(**)	60.20	48.16	20.94	39.44	48.53	47.14
SCHOOL NUMBER 4	7.60	(4)	6.62	(4)	-9.75	(22)	59.14	55.23	17.83	41.25	59.64	63.82
SCHOOL NUMBER 5	5.24	(5)	3.34	(5)	10.88	(5)	59.10	55.70	18.08	41.09	46.43	61.47
SCHOOL NUMBER 6	4.30	(6)	-4.96	(20)	-8.08	(18)	56.77	53.70	17.37	24.42	32.21	46.49
SCHOOL NUMBER 7	3.68	(7)	7.04	(3)	-0.53	(12)	56.86	54.61	15.70	45.11	56.70	80.20
SCHOOL NUMBER 8	2.99	(8)	-2.97	(15)	-2.95	(14)	56.95	53.92	16.46	26.78	41.56	48.19
SCHOOL NUMBER 9	2.85	(9)	2.44	(9)	2.20	(9)	55.73	53.37	17.96	41.78	49.93	62.60
SCHOOL NUMBER 10	2.79	(10)	0.07	(12)	11.30	(4)	56.05	54.01	16.58	29.46	47.62	58.06
SCHOOL NUMBER 11	1.43	(11)	2.85	(7)	-5.71	(17)	54.38	50.97	17.95	35.84	46.03	55.95
SCHOOL NUMBER 12	0.24	(12)	2.69	(8)	-3.43	(15)	53.69	50.96	17.18	25.31	35.93	46.05
SCHOOL NUMBER 13	-0.01	(13)	2.04	(10)	7.22	(6)	53.72	50.62	15.15	34.50	41.08	55.78
SCHOOL NUMBER 14	-0.14	(14)	-2.09	(13)	1.75	(10)	55.00	52.42	15.66	37.29	50.97	52.61
SCHOOL NUMBER 15	-0.23	(15)	-4.52	(19)	-9.14	(21)	53.75	49.22	16.13	44.31	60.75	62.40
SCHOOL NUMBER 16	-0.86	(16)	-10.03	(24)	13.74	(2)	54.59	43.83	13.91	96.30	97.78	98.50
SCHOOL NUMBER 17	-1.57	(17)	2.91	(6)	-5.15	(16)	52.94	48.55	14.46	39.77	55.89	62.04
SCHOOL NUMBER 18	-1.98	(18)	1.44	(11)	-14.18	(23)	54.37	48.17	15.10	87.27	93.64	98.18
SCHOOL NUMBER 19	-3.45	(19)	-6.89	(22)	-0.86	(13)	50.70	47.42	13.77	34.31	42.68	60.99
SCHOOL NUMBER 20	-3.56	(20)	-3.54	(17)	-8.60	(19)	51.20	49.08	13.01	33.58	47.13	55.40
SCHOOL NUMBER 21	-5.93	(21)	-3.72	(18)	4.56	(7)	48.66	43.96	14.10	19.37	33.16	41.14
SCHOOL NUMBER 22	-7.51	(22)	-2.29	(14)	0.45	(11)	46.97	44.33	11.43	28.33	42.49	62.21
SCHOOL NUMBER 23	-9.09	(23)	-5.08	(21)	2.50	(8)	45.17	43.16	11.62	21.33	36.95	44.79
SCHOOL NUMBER 24	-9.84	(24)	-3.45	(16)	-9.00	(20)	46.16	41.88	10.02	17.68	33.15	48.40
SCHOOL NUMBER 25	-15.08	(25)	-8.57	(23)	-20.47	(24)	39.89	37.37	10.70	16.87	25.81	39.44
SCHOOL NUMBER 26	-27.50	(26)	-23.27	(25)	NA	(**)	30.72	28.17	5.68	15.29	26.69	42.50

Table 20

1984-85 School Effectiveness Indices and Related Statistics
9-12 Schools

SCHOOL	EFFECTIVNESS INDICES 1985 INDEX	RNK	1984 INDEX	RNK	1983 INDEX	RNK	PERCENT GAINS POS	> GRP	SIG	PCT. GEQ 50'TH PCTILE. R	M	L
SCHOOL NUMBER 1	31.11	(1)	26.25	(1)	36.25	(1)	71.95	69.06	30.51	21.24	43.62	68.01
SCHOOL NUMBER 2	23.57	(2)	25.39	(2)	3.62	(8)	68.83	53.89	31.16	93.33	95.00	96.67
SCHOOL NUMBER 3	21.09	(3)	11.42	(4)	5.52	(7)	65.31	57.50	28.12	71.19	78.81	83.05
SCHOOL NUMBER 4	7.13	(4)	17.21	(3)	10.51	(2)	54.40	50.32	17.56	39.46	59.64	53.41
SCHOOL NUMBER 5	4.01	(5)	3.97	(6)	8.54	(4)	54.16	52.21	14.16	54.91	56.11	69.12
SCHOOL NUMBER 6	1.67	(6)	-1.91	(14)	1.85	(10)	51.84	48.34	13.46	46.44	55.35	61.07
SCHOOL NUMBER 7	0.32	(7)	5.32	(5)	8.87	(3)	53.26	48.38	11.92	50.46	50.00	65.83
SCHOOL NUMBER 8	0.11	(8)	-2.34	(15)	-3.18	(15)	50.86	47.39	12.50	19.89	27.95	35.30
SCHOOL NUMBER 9	-0.23	(9)	-5.97	(19)	-2.94	(14)	51.64	49.48	11.21	32.38	32.64	46.38
SCHOOL NUMBER 10	-0.68	(10)	-0.46	(11)	-1.38	(13)	49.86	46.49	11.16	10.33	16.94	25.82
SCHOOL NUMBER 11	-1.56	(11)	3.30	(8)	6.92	(6)	50.96	45.66	10.89	48.71	48.85	56.70
SCHOOL NUMBER 12	-1.71	(12)	0.41	(10)	7.66	(5)	50.23	46.22	9.64	56.71	56.50	65.66
SCHOOL NUMBER 13	-2.61	(13)	-13.17	(25)	-6.34	(20)	46.38	42.45	10.13	15.83	21.61	31.52
SCHOOL NUMBER 14	-2.67	(14)	-7.59	(20)	2.78	(9)	50.49	47.68	11.20	34.29	37.50	46.15
SCHOOL NUMBER 15	-3.17	(15)	-5.07	(17)	0.59	(12)	49.73	46.87	14.20	50.10	44.33	60.36
SCHOOL NUMBER 16	-3.60	(16)	3.84	(7)	NA	(**)	52.83	49.05	1.88	32.50	31.71	58.54
SCHOOL NUMBER 17	-4.21	(17)	1.07	(9)	.74	(11)	48.26	43.26	11.19	63.76	58.57	82.46
SCHOOL NUMBER 18	-4.28	(18)	-1.08	(13)	-5.67	(18)	49.01	46.02	7.95	28.98	34.23	54.97
SCHOOL NUMBER 19	-6.06	(19)	-9.79	(24)	-16.36	(25)	45.97	41.59	12.33	36.04	43.95	43.18
SCHOOL NUMBER 20	-6.83	(20)	-0.91	(12)	-5.81	(19)	43.14	39.45	8.36	14.69	16.85	24.92
SCHOOL NUMBER 21	-7.71	(21)	-9.23	(22)	-10.38	(23)	44.46	41.94	8.42	21.82	25.93	33.42
SCHOOL NUMBER 22	-7.82	(22)	-8.19	(21)	-4.20	(16)	44.59	41.99	8.75	25.93	24.67	41.60
SCHOOL NUMBER 23	-7.97	(23)	-3.01	(16)	-4.62	(17)	43.91	38.70	6.75	8.45	15.40	17.25
SCHOOL NUMBER 24	-8.44	(24)	-9.57	(23)	-9.07	(22)	42.75	40.25	5.97	10.02	14.89	19.00
SCHOOL NUMBER 25	-10.03	(25)	-5.59	(18)	-8.74	(21)	42.05	39.31	8.23	28.50	30.56	39.42
SCHOOL NUMBER 26	-11.77	(26)	-13.58	(26)	-10.59	(24)	39.16	36.34	6.93	12.27	14.55	23.32