DOCUMENT RESUME

ED 308 227 TM 013 597

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TITLE The Internal Structure and Correlates of the South Carolina Needs Assessment Instruments.
SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE May 89
GRANT R117P80006
NOTE 67p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Construct Validity; Educational Assessment; *Educational Environment; Elementary Secondary Education; *Evaluation Methods; *Needs Assessment; Parent Attitudes; Policy Formation; *Questionnaires; *School Effectiveness; Student Attitudes; Teacher Attitudes; *Test Validity
IDENTIFIERS Parent Surveys; *South Carolina Needs Assessment Instruments; Student Surveys; Teacher Surveys

ABSTRACT

The internal structure and correlates of the South Carolina State Department of Education's Needs Assessment Instruments (NAIs) for teachers, parents, and students were examined for 61, 61, and 36 schools, respectively. The NAIs are questionnaires that assess six indicators of school effectiveness: (1) instructional leadership of the principal; (2) emphasis on academics; (3) high expectations; (4) positive school climate; (5) frequent monitoring; and (6) positive home-school relations. The internal structure of the NAIs displayed limited convergent and discriminant validity, and the scales did not provide independent measures of the constructs implied by their names. However, the scores produced by the teacher instrument were often significantly and moderately positively correlated with a variety of salutary educational outcomes, with most scales showing a similar pattern of correlations with various criteria. These correlations often persisted when statistical controls for student ethnic composition and economic status were applied. Result patterns suggest that the various scales of the instruments measured general or global positive sentiments toward the school rather than specific dimensions of school climate, and these generalized views were often related to positive educational outcomes. The student and parent instruments generally failed to show interpretable patterns of correlations with the criteria examined. Developing and using school assessment instruments in relation to the effective-schools-movement lists are discussed. Twenty-two tables present study data. (Author/SLD)

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The Internal Structure and Correlates of the South Carolina Needs Assessment Instruments

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May 1989

This research was supported in part by Grant No. R117P80006 from the Office for Educational Research and Improvement, U.S. Department of Education, for assessing school reform results. The opinions expressed are the authors', and do not necessarily represent the position or policy of the Department or of any other agency. We are grateful for the editorial counsel of Denise C. Gottfredson and Lois G. Hybl on drafts of this report.

TM013597

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Abstract

Much of the reform legislation of the past decade has been influenced by the effective schools movement. This influence is seen in survey instruments developed to assess characteristics of schools connected with effectiveness according to the literature associated with this movement. These instruments commonly produce scores intended to measure "Instructional Leadership," "High Expectations," "Frequent Monitoring," and so forth, paralleling the indicators of effective schools described by Edmonds (1979) and others. The items for these instruments are selected to compose scales that reflect interpretations of the effective schools literature.

In this paper we scrutinize the internal structure and correlates of the South Carolina State Department of Education's Needs Assessment Instrument. This instrument was devised to assess six indicators of effective schools according to the South Carolina State Department of Education. The internal structure of the Needs Assessment Instrument displays limited convergent and discriminant validity; the scales do not provide independent measures of the constructs implied by their names. But the scores produced by the teacher instrument are often significantly and moderately positively correlated with a variety of salutary educational outcomes, with most scales showing a similar pattern of correlations with various criteria. These correlations often persist when statistical controls for student ethnic composition and economic status are applied. The patterns in the results imply that the various scales of the instruments may measure general or global positive sentiments towards the school rather than specific dimensions of school climate, and that these generalized views are often related to positive educational outcomes. The student instrument generally failed to show interpretable patterns of correlations with the educational criteria examined.

Implications and speculations for developing and using school assessment instruments related to the effective-schools-movement lists are discussed.

The Internal Structure and Correlates of the South Carolina Needs Assessment Instruments

One basis for enthusiasm about school reform in the 1980's has been the effective schools movement and associated literature (Purkey & Smith, 1983; U.S. Department of Education, 1985). This literature has been influential because it suggests that effective education depends not only on teacher behavior and classroom instruction but also on features of the school as a whole. Educators have endorsed the effective schools movement, in part, because it provides an optimistic alternative to the more pessimistic view that schools have little effect on student achievement that was suggested by school-effects research in the Coleman et al. (1966) tradition.

"Effective schools research" has often begun with schools that were believed to produce student achievement beyond that predicted by the social class and academic background of their students. This line of research has then sought to identify features of these schools that contribute to their effectiveness. For example, Edmonds (1979) suggested the following list of features: (a) strong administrative leadership, (b) high expectations for student achievement, (c) an orderly atmosphere conducive to learning, (d) an emphasis on basic skills, and (e) frequent monitoring of pupil progress.

A number of researchers using a variety of methods have produced their own lists of sensible-sounding features of effective schools (Brookover & Lezotte, 1979; Levine & Stark, 1981; Purkey & Smith, 1983; Weber, 1971; Wynne, 1980), adding such factors as effective use of class time, positive home-school relations, and clear school mission to Edmonds' original list. The effective schools research suffers from some acknowledged weaknesses, including inadequate controls for student characteristics, narrow and small samples of students, errors in identifying effective schools, and inadequate attention to whether school features are alterable (Purkey & Smith, 1983; Ralph & Fennessey, 1983; Rowan, Bossert, & Dwyer, 1983). Despite these weaknesses, states have incorporated interpretations of this body of research into school reform legislation.

The features of schools associated with the effective schools movement (e.g., clear school mission, safe and orderly learning environment, high expectations, opportunity to learn and student time on task, frequent monitoring, good home/school/community relations, instructional leadership of the principal) were not identified from research that measured school climate through surveys. More typically, schools presumed to be more effective and less effective were observed with less structured methods in an effort to discern regularities in the distinctions among contrasting schools.

Assessments of School Characteristics

In recent years, assessment of school characteristics has been mandated or strongly encouraged by state and local school systems around the country (e.g., Chrispeels & Meaney, 1985; South Carolina, 1984; Murphy, 1987). South Carolina requires schools to assess a specific list of effective schools "indicators" and to use these assessments to develop school improvement plans. Schools and local School Improvement Councils are required to evaluate their progress in school improvement according to these indicators.

This emphasis on planning and needs assessment has increased interest in the usefulness of survey-based approaches to the measurement of school characteristics, and a number of survey instruments have been developed. Incompletely overlapping subsets of these instruments have recently been independently reviewed (Arter, in preparation; D. C. Gottfredson, Hybl, G. D. Gottfredson, & Castañeda, 1987; McGrail, Wilson, Buttram, & Rossman, 1987).

A reasonable summary of the reviews is that the assessment of school characteristics along the lines suggested by the effective schools literature is in an early stage of development. Some carefully developed and reasonably well validated school climate assessment instruments exist (G. D. Gottfredson, 1984; G. D. Gottfredson & D. C. Gottfredson, 1989; Wilson, Firestone, & Herriott, 1985), but these instruments were developed independently of the

effective schools movement and contain scales that do not map neatly into the lists of effective schools characteristics promulgated as part of state and local reform efforts. In contrast, the psychometric work underlying the available instruments that label constructs in ways congruent with the effective schools lists is usually defective or missing.

The Connecticut State Department of Education has produced instruments that have been adopted in other states and contain content carefully aimed at the effective schools research (Pecheone & Shoemaker, 1984; Proctor & Villanova, 1984; Villanova Gauthier, Proctor, & Shoemake , 1981). Psychometric properties were examined at the individual level rather than the school level. Proctor and Villanova (1984) reported individual-level *alphas* ranging from .55 to .93, and re-test reliabilities based on a sample of 60 teachers in a single school ranging from .67 to .90. There is *no* between-school variance in a sample of teachers from one school, so reliability evidence of this sort pertains to the reliability with which *individual differences* in the perception of the *same* school environment are measured. Subsequent factor analyses by Kijai (1987) imply that even at the individual level of analysis there may be imperfect assignment of items to scales. We can be reasonably sure that these scales reliably measure individual differences in perceptions of school, but few data to assess the extent to which the scales measure differences *among schools* have been reported.

Research linking survey-based indicators of "effective schools characteristics" to independent measures of student outcome (achievement, timely progression through the grades, school persistence) is for the most part lacking. Indeed, basic examinations of the psychometric properties of such surveys in measuring *school* characteristics is needed. But in one study applying analyses at the school level, Kijai (1987) has recently shown that mean scores for schools that won "school incentive awards" significantly differ from scores for schools matched on certain characteristics but that had not won such an award on several scales from surveys modeled on a Connecticut instrument.

The South Carolina Needs Assessment Instruments

The South Carolina State Department of Education (SDE, 1987) recently devised Needs Assessment Instruments for students, teachers, and parents. These instruments are questionnaires that assess six indicators of school effectiveness promulgated by the SDE (1987): (1) Instructional Leadership of the Principal (ILP), (2) Emphasis on Academics (EA), (3) High Expectations (HE), (4) Positive School Climate (PSC),[1] (5) Frequent Monitoring (FM), and

[1]Throughout this report "Positive School Climate" and "PSC" refer to the SDE instrument's scales with this name. The term "school climate"

(6) Positive Home-School Relations (PHSR).

The South Carolina Education Improvement Act (EIA) of 1984 requires each school to conduct a formal needs assessments at least every three years; to involve all faculty and samples of parents and of students (grades nine and above) in this assessment; and to assess the school in terms of the six indicators of effective schools defined by the SDE. To assist with this activity, the School Improvement Division of the SDE (1987) devised its three survey instruments: (a) a 60-item inventory for use with teachers, (b) a 60-item inventory for use with students, and (c) a 50-item inventory for use with parents. The SDE enlisted expert judges to advise on survey items that appeared related to each of its indicators.

Items judged to belong to each of these six categories are combined together to form six scores that are reported to schools. The teacher and student inventories each contain ten items per scale; the number of items per scale varies from 6 to 10 for the parent survey. Instruments are scored to produce six scores for each school and from each population surveyed.

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is used in its generic sense to refer to measurable aspects of school "personality," that are assumed to be multidimensional. Compare Anderson (1985), Freiberg, Driscoll, and Knight (1987), or Payne and Pugh (1976). The SDE definition of Positive School Climate appears related to a clear school mission and a safe and orderly learning environment.

Factor analyses conducted at the individual level suggested 11 student, 9 teacher, and 7 parent factors underlying item responses. The results of these analyses were not used to alter the initial assignment of items to scales, however. The developers initially reported no technical information about the scales as scored from the instrument, although *alpha* coefficients for the instruments as a whole (apparently the sum of all items in each entire instrument) were reported (teacher = .96, student = .95, parent = .94). As far as we know, neither correlations among the scales nor correlations of specific scales with independent indicators of educational progress were reported.

Segars and Gottesman (1989) recently began the basic examination of the psychometric properties of the South Carolina Needs Assessment instruments by providing useful information on scale homogeneity from item analyses conducted at the appropriate (i.e., school) level of analysis. They reported *alpha* coefficients ranging from .80 to .88 for the scales, and they showed that from 18% to 38% of the variation in individual-level variability is among schools. They present results that imply that the highest correlations of student, teacher, and parent scores with aggregated school residual gain scores on

achievement tests range from less than .05 to about .35 (median about .20).[2]

Of the 91 school districts in the state, 89 used at least one of the South Carolina Needs Assessment Instruments in 1988, and the SDE scored surveys conducted in 938 schools (Segars & Gottesman, 1989).

Data and Analyses

Of the 70 schools in the Charleston County School District, 63 elected to use the SDE instruments as part of their EIA mandated needs assessment. A committee of district principals endorsed the state instruments because they are brief, straightforward, easy to read, and easy to administer (because responses are marked directly on the questionnaire). Principals also planed to use the scoring service offered by the SDE and liked the format of the results they were to receive.[3]

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[2]The report shows results of stepwise regression analyses within each of five groups of schools (with grouping mainly based on affluence indicators). To estimate the largest correlations, we took the square root of the squared multiple correlation reported for the first step. Increments for scales entering the equation after the first step are sometimes larger than increments for the first step suggesting that suppressor effects (and therefore significant negative partial regression coefficients) were sometimes obtained. Specific correlations and regression coefficients were not reported.

[3]During the first mandated assessment and planning cycle in 1985, all CCSD schools used the Connecticut instruments, which many schools found cumbersome and difficult to interpret, leading all but a few schools to switch to the State survey for the 1988 assessment.

In accordance with instructions from the State Department, schools were asked to select random samples of at least 10% of parents and 20% of students in grades 6 and above to participate in surveys. Schools were advised to generate school lists from which to choose every *n*th name to accomplish sample selection. In elementary schools, the children of selected parents delivered the instrument to the home and returned it to the school the next day. In middle and high schools, parents were frequently invited to come to the school for an "open house" and asked to complete questionnaires at that time. Some schools mailed their parent surveys. If the survey was administered to elementary students, only fifth (or fourth and fifth) graders usually participated. All teachers were surveyed, usually during staff meetings. As far as we know, these procedures are similar to those followed by other school districts in the state. Two vocational high schools that conducted needs assessments but had somewhat atypical student populations were excluded from analysis, leaving a total of 61 schools.

CCSD routinely participates in the State achievement assessment programs. This includes assessments of students at each grade level using a criterion-referenced set of tests known as the Basic Skills Assessment Program (BSAP). BSAP assessments are made for students enrolled in grades 1, 2, 3, 6, 8, and 10. In other grades (4, 5, 7, and 9) a norm referenced test--the Comprehensive Test of Basic Skills (CTBS) is used. Earlier research has shown that (a) the population of

students has been shifting in recent years such that the average age of students taking each grade-level test has been steadily increasing (G. D. Gottfredson, 1988) and (b) there are differences among schools in the propensity to promote students with a given level of demonstrated achievement (Rose, 1988). This evidence implies that promotion/retention decisions influence test score distributions for the schools in the district and for grade levels within schools. A school can increase the percentage of students meeting the criteria in at least three ways: (1) doing a better job of instruction, (2) changing the age of examinees through alterations in retention/promotion practices, (3) changing the school's population in some other way: becoming selective, establishing "magnet" programs, encouraging attrition through expulsion or related methods, etc. For this reason, this report examines not only grade-level test scores but also academic achievement measures that are sensitive to the orderly progression of students through the grades.

The following additional variables are examined in this report:

Mean Student Age

This is the mean age of students in each grade. In schools and grades in which students have been retained in grade, this mean will tend to be elevated.

Percentage Never Retained

This percentage is approximated by using students' birth dates to determine whether they are overage for grade. It is assumed that a student who is overage for grade has been retained, an approximation flawed only to the extent of in-migration of students from other districts with school initiation ages that differ from those in this district and any error in recording student birth date.

Percentage White

Percentage Free/Reduced Lunch
This is an inverse proxy measure for economic status of students. Provision of free/reduced lunch is based on parental report of economic standing, and the lower percentages at higher grade levels suggest that differential attrition (or stigma associated with free/reduced lunch) also influence this percentage.

Percentage Male

Mean Reading Score
This is the grade-level mean on a grade-specific criterion-referenced reading test (BSAP) keyed to state reading instructional objectives.

Mean Math Score
This is the grade-level mean on a grade-specific criterion referenced math test (BSAP) keyed to state reading instructional objectives.

Percentage Meeting Reading Criterion
The State Department of Education suggests a criterion score on the BSAP for satisfactory progress. This is the percentage of students in each grade meeting or exceeding this criterion score for reading.

Percentage Meeting Math Criterion
The State Department of Education suggests a criterion score on the BSAP for satisfactory progress. This is the percentage of students in each grade meeting or exceeding this criterion score for math.

Percentage Meeting Reading Criterion On Time
This is the percentage of students attempting a grade level BSAP reading exam who (a) exceed the criterion level *and* (b) are not overage for their grade. This percentage is included as an "honest" indicator of educational progress.

Percentage Meeting Math Criterion On Time
This is the percentage of students attempting a grade level BSAP math exam who (a) exceed the criterion level *and* (b) are not overage for their grade.

Mean Reading Score for On-Time Students
This is the mean BSAP reading score for those students who are not overage for grade.

Mean Math Score for On-Time Students
This is the mean BSAP math score for those students who are not overage for grade.

Aggregated Residual Gain Scores.
The State Department of Education prepares School Performance Reports used for making school incentive awards. In these reports test scores for previous years are merged with files of test scores for a current year, and these merged files are used to calculate residual gain scores for each individual student. Because some students are promoted in grade and others are retained in any given year, not all students in any one grade take the same test the previous year, so residual gains are computed separately for the separate assessment groups but pooled to produce an aggregated gain index. For grade 1 the gain index is based on a "readiness" assessment as the pretest variable with the BSAP test performance as the posttest variable, and probably does not involve as efficient a statistical control as do the gain indices for higher grade levels.

Conceptually, school climate is a property of the school. In surveys, individuals' reports about their schools are used as sources of information about school differences. Individual differences in perceptions of school climate are regarded as error or "noise." Accordingly, analyses are conducted at the school level, and are based on aggregated data for persons in each school.

Results

This section first presents results pertaining to the internal structure of the instruments, and then shows their relationship with various external criteria.

Internal Structure

Interscale correlations, *alpha* reliabilities, and correlations corrected for unreliability[4] for the Student and Teacher scales are shown in Table 1. Homogeneity coefficients range from .91 to .97. For student scales, corrected interscale correlations range from .82 to 1.00, implying that the scales fail to show discriminant validity. Put another way, regardless of scale labels, any two scales are essentially measuring the same thing. This is especially true for Positive School Climate and Emphasis on Academics, where the estimated correlation between true scores is perfect.

For the Teacher scales, interscale correlations range from .65 to .88, and disattenuated correlations range from .66 to .93 implying somewhat more discriminant validity, but a very high degree of redundancy nonetheless Instructional Leadership of the Principal shows least commonality with the other scales, with disattenuated correlations ranging from .66 to .79.

Correlations between the Student and Teacher scales are shown in Table 2. The "validity diagonal" (bold-face diagonal entries) shows correlations between same-named scales, which should be higher than

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[4]Correction for unreliability or *disattenuation* is performed to estimate the correlation between the hypothetical *true scores* underlying the fallible measures. See an introductory measurement textbook (e.g., Gulliksen, 1950) or Stanley's (1971) chapter on reliability.

off-diagonal correlations for the scales to demonstrate convergent and discriminant validity (Campbell & Fiske, 1959). Most diagonal entries are of about the same magnitude as off-diagonal entries. For example, the student scale labeled "Instructional Leadership of the Principal" is no better an indicator of teacher score for this variable than are two other student scales. No scale meets the Campbell-Fiske (1959, 82-83) criteria for evaluating matrices of correlations for prospective measures of the same constructs by alternative methods.[5] The correlations are always positive and usually significant, implying that when students rate a school positively, teachers also generally do so.

Correlations among the scores derived from the Parent survey are shown in Table 3. Corrected correlations shown below the diagonal range from .77 to 1.00, indicating redundancy. (Uncorrected correlations range from .73 to .93, also very high.) Except for Instructional Leadership of the Principal, where disattenuated correlations range from .77 to .92, the disattenuated correlations among the scales are .91 or higher (.91 to 1.00).

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[5]These are: (a) entries on the validity diagonal are significant and large enough to warrant further examination of validity, (b) entries on the validity diagonal are higher than the off-diagonal entries in the same column and row, (c) the validity diagonal entries are higher than the off-diagonal entries for this variable in the mono-method matrix (in this instance the Table 1 matrix), and (d) patterns in correlations among proposed measures of constructs should be similar in mono-method (Table 1) and heteromethod (Table 2) matrices.

The correlations of the Parent scales with the Student and Teacher scales are shown in Tables 4 and 5. Diagonal entries are again about the same size as off-diagonal entries, implying discriminant validity. All correlations are positive, so if one group rates the school in a positive way, other groups tend to do so as well.

Correlations with External Criteria

Correlations between the South Carolina assessment survey scales and a variety of educational outcomes are displayed for grades 1, 2, 3, 6, 8, and 10 in Tables 6 through 11.[6]

Student Scales

Of the district's elementary schools, 16 chose to administer the student instruments to their fifth grades (and some schools included fourth grades); 11 middle schools and 9 high schools also administered the student instruments.

The educational experiences of early grade students usually occur within the single classrooms in which they spend most of their time.

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[6]Examination of the distributions of test score data showed that one elementary school's third grade results (for a single classroom) made it an extreme outlier. This observation, together with historical data, suggests an interpretation that the integrity of the assessment program was compromised in this instance. Accordingly, in preparing Table 8 and all other tables pertaining to the third grade we excluded this school's third grade testing program data.

In addition, elemenatary school pupils may have had difficulty understanding the survey questions, and the instruments were not intended to be administered to elementary pupils. For these reasons, elementary school students' reports should perhaps not be expected to provide dependable reflections of the climates or environments of classrooms experienced by first, second, or third graders. Because some schools administered surveys to elementary pupils, however, their correlates can be examined.

For the most part, elementary school student survey scores do not show significant correlations with any of the demographic or educational variables examined in Tables 6 through 8, although the small *ns* imply that only large correlations can be statistically significant. Only for grade three does any student scale have a regular pattern of significant correlations with any of the educational outcomes: Frequent Monitoring shows a consistent pattern of *negative* correlations with math and reading test scores and with orderly progress through the grades.

No student inventory scale has a significant correlation with any educational outcome for the middle school grades six or eight. Correlations between the Frequent Monitoring scale and all of the educational outcomes are negative and moderate in size, although not statistically significant with the *n* of 11 schools. As was also seen for the elementary results, Frequent Monitoring is significantly

correlated with the percentage of students receiving subsidized lunch, and for the middle school grades Frequent Monitoring is significantly negatively correlated with percentage of students who are white.

In the grade 10 results (Table 11), schools with affluent and predominantly white student populations tend to produce low scores on all six of the student scales, substantially and significantly so for five of the six scales. Furthermore, the preponderance of the correlations of the high school students' scales with tenth grade educational indicators are negative and they are often significantly so. For example, the higher the scores for Instructional Leadership of the Principal and Emphasis on Education, the lower the test scores and the smaller the proportion of students making orderly progress through the grades.

Teacher Scales

The most impressive consistency among the results for the teacher scales in Tables 6 through 11 is the tendency for five of the six scales (Emphasis on Academics, High Expectations, Positive School Climate, Frequent Monitoring, and Positive Home/School Relations) to show a similar pattern of correlations with the criteria, but for this pattern of coherence to be less marked for Instructional Leadership of the Principal. This pattern is in accordance with the results of our examination of the internal structure of the teacher scales, where we found that only ILP showed much independence of the other scales.

Scales two through six (EA, HE, PSC, FM, and PHSR) tend to be lower in schools with overage or retained students, higher in predominantly white schools with few poor students, and to be higher in schools where students are making orderly progress through the grades and are earning relatively high test scores. These correlations are usually statistically significant in the elementary grades where the *n* is 36 to 37 schools, and they show the same pattern and are often significant for the smaller number of middle schools. For the grade 10 data for the small number of high schools, this bundle of scales tends to have nonsignificant negative correlations with most educational criteria. The results for Positive Home/School Relations diverge from the usual pattern of coherence.

Teacher reports of Instructional Leadership of the Principal are significantly related to various indices of on-time student progress for grades one through three and nonsignificantly related to these indices for grade six as well. This scale had no significant correlation with any criterion in the grade 6, 8 or 10 results, although for the small number of high schools the correlations with educational outcomes are mostly negative and moderate to substantial (-.36 to -.61) in size.

Parent Surveys

The parent scale for Instructional Leadership of the Principal is relatively independent of school ethnic composition and affluence. At

the elementary and middle school levels it tends to have positive, often statistically significant correlations with test scores and orderly student progress through the grades. The remaining parent scales are highly redundant (Table 3) and usually have more modest positive and only occasionally significant correlations with these same educational outcomes. In particular, Positive School Climate has moderate and sometimes significant correlations with the percentage of middle school students meeting the reading and math standards on time and other educational outcomes (Tables 9 and 10).

For grade 10, the correlations of the parent scales with the educational progress indices are generally negative, but usually not significantly so.

Partial Correlations

Tables 6 through 11 document that school affluence and ethnic composition are often associated with the needs assessment scores, and Appendix Table A-5 documents the substantial correlations between school ethnic composition and student affluence with the educational outcome indicators. For instance, correlations between mean reading score and percentage of students who are white range from .64 to .97, and the correlation of percentage of students receiving subsidized lunch with mean reading score ranges from -.76 to -.92.

To assess the extent to which the correlations reported in Tables 6 through 11 persist when school ethnic composition and affluence are statistically controlled, second-order partial correlations--controlling for percentage of students who are white and percentage of students receiving free or reduced lunch--were calculated in those instances where the number of schools was judged to be sufficient (i.e., *n* greater than or equal to 18). These partial correlations, shown in Tables 12 through 14 for elementary school grades 1, 2, and 3 for the teacher and parent instruments, imply that a number of significant correlations remain for the teacher scales, although other correlations are reduced to near zero. The pattern of partial correlations shows that the related cluster of teacher scales are often modestly correlated with test scores and timely educational progress net of school ethnic composition and student affluence, although often only weakly so.

Among the parent scales, only the Instructional Leadership of the Principal scale shows a regular pattern of significant positive correlations with the educational progress indicators (with significant coefficients seen for the first and third, but not second, grades). Occasional significant partial correlations for other parent scales are not replicated across grades and are sometimes negative.

Aggregated Residual Gain Scores

An additional way to explore the relation between needs assessment instrument scores and educational progress is to examine the correlations between the instruments' scores and systematic deviations from expected educational standing given the students' own prior standing on educational tests. These deviations from expected standing, when averaged for schools, are aggregated residual gain scores. An exploration of these gain scores is presented in Table 15 for the elementary grades and in Table 16 for the middle and high school grades.

There is no evidence that educational gain is systematically associated with any student needs assessment scale. The one observed significant correlation is *negative* and represents only about a third as many significant outcomes as are expected by chance alone. For the middle and secondary grades, there are more significant correlations than would be expected by chance alone, but some are negative and some are positive.

Teacher scales from the redundant cluster (EA, HE, PSC, FM, PHSR) are often significantly and positively correlated with reading gain, especially in the early elementary years (where assessment data for individual educational tests are not as reliable over time as they become for older students). This cluster of teacher scales tends to have significant correlations with math gain for grades two and five,

but the correlations are near zero or negative for grade four. The two significant correlations for the middle and high school teacher scales is one fewer than expected by chance alone, and the correlations are sometimes positive and sometimes negative, providing no evidence of systematic patterns of correlation between the teacher assessment scales and educational gain in the post-elementary grades.

The parent scale titled Instructional Leadership of the Principal has a significant positive correlation with reading or math gain 7 of 20 times and the correlation has a positive sign 17 of 20 times in Tables 15 and 16. These results indicate a modest relationship between this scale and educational gain through the middle school years. The other parent scales are usually nonsignificantly correlated with reading or math gain, and when significant correlations occur they are sometimes positive and sometimes negative; a pattern that provides no dependable evidence of a systematic relation between these parent scales and educational gain.

Discussion

The results have a variety of implications for school assessment, despite limitations due to (a) the small number of schools for analyses involving grades 6, 8, and 10, (b) redundancy in the analyses because multiple grades are included in the same schools, and (c) the application of necessarily imperfect statistical controls for student

input characteristics.

The results mean that attempts to interpret profiles based on the highly correlated scores of the South Carolina Needs Assessment instruments will often be futile. Both the analysis of internal consistency and the examination of external correlates indicate that five of the six teacher scales are so redundant as to be essentially interchangeable, and that this is also true for five of the six parent scales.

The failure of same-named scales based on the reports of different populations of respondents to demonstrate higher correlations than do differently-named scales lends no support to the interpretation of the scales according to the named constructs. On the contrary, the high within-population correlations and the relatively uniform off-diagonal correlations in Tables 2, 4, and 5--combined with the result that correlations *between* the scores obtained from *different* populations of respondents are considerably lower than the correlations *among* the scores obtained from any one of these populations--implies that (a) the scales of each instrument tend to measure some global aspect of school climate and (b) the three populations' (students, parents, teachers) views of school climate are somewhat independent.

No evidence provides support for the use of the student surveys in planning school improvement programs; student scores did not show

consistent patterns of correlations with relevant educational criteria.

In contrast, the highly related scales of the teacher instrument are frequently associated with educational outcomes of importance, and these associations often persist net of statistical controls. And, these scales are sometimes significantly correlated with aggregate measures of educational gain--even [illegible] grades three and above where educational test scores usually have a considerable degree of stability over time. The regularities in the patterns of partial correlations and correlations with aggregated residual gain scores provide impressive evidence that an underlying factor related to most of the scales in the teacher instrument is related to independent indicators of educational progress.

The psychometric evidence of redundancy among the scales and lack of convergent validity jibes with our observation that school improvement teams who attempted to use these scores in their needs assessment frequently had difficulty in identifying substantive areas for school improvement (although they were usually pleased that the results seemed "positive"). Most elementary school teams discounted the student survey results as having little meaning.

The lack of independence among the scales results in part from composing scales with items whose correlations are often as high or higher with other scales than with the scale in which they are scored,

as shown in Appendix Tables A-2 to A-4.

It is difficult to compare this set of instruments with other instruments intended to measure the same or similar constructs, because the developers of such instruments have generally not reported psychometric properties at the correct (school) level of analysis. It was possible to analyze published data (Pecheone & Shoemaker, 1984) from 10 schools for a Connecticut instrument with scale names closely resembling the South Carolina instruments. The results, shown in Appendix Table A-6, imply that interscale correlations are often quite high. Nevertheless, on the basis of this small sample of schools it appears that there is less redundancy in the Connecticut scales than in the South Carolina scales.

Nothing in the present results would allow one to determine whether the correlations observed between needs assessment scores and educational outcomes is causal in either direction. Indeed there is reason to speculate that a cycle of mutual causation is plausible such that both positive reports about the school and test scores may go up in an improving school and that both may go down in a deteriorating school. This agnosticism with respect to causal direction applies with equal emphasis to analyses involving the application of statistical controls for ethnicity and affluence and to the analyses of survey scores and aggregate achievement score residual gains. There is at least as much reason to speculate that informants will say

positive things about a school when students are doing well in their studies as there is to speculate that students will do well in schools about which people have positive things to say.

In what sense can schools monitor climate with the instruments under examination in this report? Except for the student surveys, which receive little support from the results presented here, there is every reason to believe that a school earning high scores on the scales of the teacher inventory and the parent inventory are better off than schools that receive low scores. This belief is easily bolstered by considering the items of the surveys worded negatively. Who would want a school to be characterized by the following statements?

> The principal maximizes classroom interruptions.
> The principal seldom communicates with teachers.
> Teachers limit their instructional methods to whole class lecture.
> Teachers are slow in evaluating and returning homework.
> There are many student-related interruptions during class time.
> Few students have an opportunity for success.
> Unsuccessful students get no help from their teachers.
> Teachers in this school treat students unfairly.
> People fear for their safety in this school.
> The tests used are error-ridden and unrelated to what is taught in our school.
> Parents are kept in the dark about students' academic progress.
> The principal and teachers make parents feel unwelcome at the school.

This parody--accomplished by turning items from the teacher inventory into their opposites--illustrates that much of the content of the inventory suggests desiderata that are commonsensical and probably important in their own right. Nothing in the results implies

otherwise. The results do imply, however, that the interpretation of the scales of the Needs Assessment Instruments in terms of the constructs suggested by their names will be of limited usefulness. Any school that earns low scores on these scales very likely has problems it should take steps to address, but it may be difficult to specify the precise nature of the problems that require solution on the basis of patterns of Needs Assessment scores.

Developing Measures of Schools

Workers in the tradition of the effective schools movement have often assumed that it is possible to develop survey-based measures of school characteristics specified in advance from research that was not measurement-based, i.e., a list of characteristics elaborated for the most part without depending on survey-based inventories of school characteristics. Whether or not it will prove possible to develop psychometrically sound survey-based measures of these effective schools constructs is an empirical question that must be addressed through analytical research that remains to be done. In this final section we discuss the level at which measurement research must occur and the nature of constructs amenable to questionnaire-based assessment. Finally, we suggest some ways to devise survey instruments congruent with the effective schools vocabulary.

Level of Measurement

Many educational measures are designed or constructed as measures of *individuals*. For example, achievement tests are constructed in a way that makes them useful measures of individual differences. Whether articulated or not, this approach to the development of measures assumes that it is individual differences in the construct in question that are of interest. Similar practices underlie the construction of ability, personality, and interest tests; developers try to show that these tests dependably measure individual differences, and they write and select items that discriminate among individuals. Oftentimes, developers act as if between-environment (between-school) differences were trivial or of no interest by conducting item analyses within a single environment.

When the reports of individuals are used as a mechanism to assess environments, individual differences in reports within an environment are noise or error. To the extent that a score reflects individual differences within environments it represents error in measuring the environment, and test construction methods that produce reliable measures of differences among individuals within environments may not produce useful measures of differences among environments. Whether segregation associated with individual differences or environmental influences on individuals produce mean differences among environments are empirical questions.

In general, item analyses to develop or evaluate scales intended to measure school characteristics should be conducted at the school level, and information about the reliability of and correlations among scales at the individual level are irrelevant for evaluating assessments of school climate. Richards (1988) has concretely illustrated the irrelevance of evidence about scale homogeneity at the individual level for making inferences about the measurement properties of school characteristics.

Nevertheless, many instruments intended to assess the characteristics of schools or classrooms were developed through individual-level item analyses and evidence about psychometric properties is available primarily at the individual level. This is true of a variety of "environment" measures including the College Characteristics Index (Stern, 1970), the Classroom Environment Inventory (Moos & Trickett, 1986), the National Association of Secondary School Principals' School Climate Survey (Halderson, 1987), and the School Self-Assessment Instruments (Andrews et al., 1987), among others.[7] The Effective School Battery (G. D. Gottfredson, 1984),

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[7]Some developers have conducted analyses that exclude variability among schools by limiting some analyses to a single school (Proctor & Villanova, 1984) or by computing reliability coefficients using within-school or within-classroom variances (Moos & Trickett, 1986; Stern, 1970). Stern (1970) recognized the difference between within-school and between-school differences, but mistakenly excluded the between-environment rather than within-environment variance in his analyses.

the Individualized Classroom Environment Questionnaire (Fraser, 1982), and the School Assessment Survey (Wilson, Firestone, & Herriott, 1985) are rare in that reliability, and validity data pertain to the school or classroom level.

What Can be Measured?

Developers of school assessment instruments working in the effective schools movement tradition generally start with a list of school characteristics that are believed to be beneficial, and they seek to write items corresponding to an understanding of those characteristics (Proctor & Villanova, 1984; South Carolina State Department of Education, 1987). This is an example of a *rational* approach to scale construction (Goldberg, 1972) which provides a useful place to start, and it directly targets a set of sensible hypotheses about differences among schools for measurement. For both scientific and practical reasons, however, determining whether the features of schools commonly contained in lists of effective school characteristics correspond to distinctly measurable constructs is an important separate step in the development of school assessment tools.

Scientific work on the measurement of school characteristics has not progressed very far; much of the research that has been done confuses levels of analysis, and much of the scholarship in this area resembles argument or persuasion more than positivistic research (e.g., C. S. Anderson, 1985; Insel & Moos, 1974; Moos, 1973).

Research involving the measurement of school characteristics for large numbers of schools (e.g., G. D. Gottfredson & D. C. Gottfredson, 1985) is rare, and even methodologically sophisticated researchers (e.g., Bryk & Thum, 1989) present little information about the measurement properties of their school-level measures. In short, practitioners have only limited scientific resources to call on and no psychometrically sound examples of instruments targeted at the effective schools movement's characteristics on which to model the development of new instruments.

Accordingly, in the remainder of this paper we provide suggestions and speculation about potentially productive survey-based approaches to the development of school assessments related to the effective schools lists.[8]

1. *Some* school characteristics do not lend themselves to assessment through surveys of teachers, parents, principals, or students. Time-on-task is an example of a characteristic that differs from minute to minute, period to period, and classroom to classroom within a school and does not lend itself to description by questionnaire items. Student engagement (on-task) rate can be

[8]Again, the lists we are discussing usually look something like the following: (a) clear school mission, (b) safe and orderly learning environment, (c) high expectations, (d) time on task, (e) frequent monitoring of student progress, (e) good home-school relations, (f) instructional leadership, (g) emphasis on academics.

better better measured using repeated structured classroom observations such as the procedures illustrated by Hiscox, Braverman, and Evans (1982).

2. Think carefully about how certain of the constructs would be reflected in attitudes or opinions of the type assessed by surve· items. For example, practical experience in working with schools on school improvement programs suggests that high expectations for student achievement may be better reflected by the *absence* of statements about the futility of educating some categories of students and the accompanying *absence* of explanations of the causes of slow learning that involve factors over which the school and teachers have control. We have seen schools where faculty say that there is little they can do to improve student academic achievement without greater assistance from parents, but where few concrete steps to obtain that assistance are regularly taken. One perspective (just one) on low expectations is that what this construct *means* is that teachers are led not to try help all students learn because they operate on a theory that places the locus of the problem in someone else's bailiwick.

The foregoing *interpretation* of the meaning of the expectation construct may be quite different than an interpretation implied by "ninety to one hundred percent of the students are expected to master all basic skills at each grade

level" (Connecticut elementary school teacher questionnaire) or by "students have opportunities to develop leadership skills" (South Carolina teacher survey). It is difficult, if not impossible, to foresee how the responses to items suggested by any perspective will work in combination with other items to form scales. Analytical research is required to examine the behavior of items and of the scales they compose. Scale composition can start with rational analysis, but this step should be followed by empirical analysis.

3. The item content of an inventory should reflect aspects of the school about which the respondent is in a position to know. For example, it may be difficult for a parent to have an informed opinion about whether teachers in a school "have good classroom control" or whether "teachers use test results to decide what should be retaught" (South Carolina parent survey).

4. Concrete, specific, and in-principle-verifiable reports may prove superior to judgments or opinions. For example, the following items may assess an orderliness or time-use dimensions with differing levels of concreteness: low concreteness = do teachers make good use of classroom time? low concreteness = teachers maximize student time-on-task, medium concreteness = how often is your class disrupted by student misconduct, high concreteness = did you send any student out of class for misconduct during the

last week, high concreteness = how many times during the past week did you take attendance as a whole-class activity?

5. Regard ideas about the dimensions to include in an inventory as hypotheses to be empirically investigated. No one has demonstrated that the characteristics on the effective schools lists can be independently measured using surveys or that independent survey-based measures of these characteristics are all correlated with other educational criteria (let alone that each makes a unique contribution to differences among schools in these criteria). Apply item analysis procedures to compose scales that are reasonably homogeneous but that are sufficiently independent of each other that each of the various scales measures something different about the school.[9] Conduct research to learn whether the scales built in this way show reasonable patterns of correlations with independent criteria. Drop measures that do not show independence from other scales or useful correlations with other criteria of school effectiveness. Measurement failure may signal a need to seek better measures or to revise initial hypotheses or theory.

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[9]Examples of applying this approach can be found in the work of Fraser (1982), Fraser, G. J. Anderson, & Walberg (1982), G. D. Gottfredson (1984), and Wilson, Firestone, & Herriott, 1985), although this work did not begin with the effective school movement's list of variables.

6. Work with school personnel or others who will interpret results to learn about the art of interpretation and to discover what aspects of score reports practitioners find easy and difficult to understand. Revise instruments accordingly. Develop score reporting formats that practitioners can understand and use.

Conclusion

There is every reason to expect that research to develop measures of school climate that treats the determination of measurable dimensions of school differences as empirical questions, that assumes that the construct validation of school climate measures entails the testing of theory about school effectiveness (rather than assuming the validity of any particular theory a priori), and that refines and revises both theory and measures in response to evidence holds promise of producing school assessment instruments useful in organizational diagnosis and evaluation. Evolution of needs assessment instruments of the type examined in this report is to be expected, and evolution in the scientific understanding of manipulable aspects of school climate that produce salutary educational outcomes for students is likewise to be expected.

References

Anderson, C. S. (1985). The investigation of school climate. In *Research on exemplary schools* (pp. 97-126). NY: Academic Press.

Andrews, R. L., Soder, R. P., Jacoby, D., Rosovsky, C., & Bamburg, J. (1987). Technical manual: School Self-Assessment Instruments. Seattle, WA: University of Washington, College of Education.

Arter, J. (In preparation). Assessing school and classroom climate: A consumer's guide. Portland, OR: Northwest Regional Educational Laboratory.

Brookover, W. B., & Lezotte, L. W. (1979). *Changes in school characteristics coincident with changes in student achievement.* East Lansing, MI: Institute for Research on Teaching, Michigan State University.

Bryk, A. S., & Thum, Y. M. (1989). The effects of high school organization on dropping out: An exploratory investigation (CPRE Research Report RR-012). New Brunswick, NJ: Rutgers, the State University of New Jersey.

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin, 56*, 81-105.

Chrispeels, J., & Meaney, D. (1985). *Building effective schools: Assessing, planning, implementing.* San Diego, CA: San Diego County Office of Education.

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J. M., Mood, A., Weinfield, F. D., & York, R. L. (1966). *Equality of educational opportunity.* Washington, DC: U.S. Government Printing Office.

Edmonds, R. (1979). Effective schools for the urban poor. *Educational Leadership* (October), 15-24.

Fraser, B. J. (1982). Individualized Classroom Environment Questionnaire: Handbook. Perth, Australia: Western Australian Institute of Technology.

Fraser, B. J., Anderson, G. J., & Walberg, H. J. (1982). Assessment of learning environments: Manual for Learning Environment Inventory (LEI) and My Class Inventory (MCI). Perth, Australia: Western Australian Institute of Technology.

Freiberg, H. J., Driscoll, A., & Knight, S. (Eds.). (1987). *School Climate*. Bloomington, IN: Phi Delta Kappa.

Goldberg, L. R. (1972). Parameters of personality inventory construction and utilization: A comparison of prediction strategies and tactics. *Multivariate Behavioral Research Monographs*. No. 72-2.

Gottfredson, D. C., Hybl, L. G., Gottfredson, G. D., & Castañeda, R. P. (1987). School climate assessment instruments: A review. In H. J. Freiberg, A. Driscoll, & S. Knight (Eds.), *School climate* (pp. 49-81). Bloomington, IN: Phi Delta Kappa.

Gottfredson, G. D. (1984). *Effective School Battery: User's manual*. Odessa, FL: Psychological Assessment Resources.

Gottfredson, G. D. (1988). *You get what you measure--you get what you don't: Higher standards, higher test scores, more retention in grade* (Report No. 29). Baltimore: Center for Research on Elementary and Middle Schools, Johns Hopkins University.

Gottfredson, G. D., & Gottfredson, D. C. (1989). School climate, academic performance, attendance, and dropout. Baltimore: Johns Hopkins University, Center for Social Organization of Schools.

Gulliksen, H. O. (1950). *Theory of mental tests*. NY: Wiley.

Hiscox, S., Braverman, M., & Evans, W. (1982). *How to increase learning time: A tool for researchers*. Portland, OR: Northwest Regional Educational Laboratory.

Insel, P. M., & Moos, R. H. (1974). Psychological environments: Expanding the scope of human ecology. *American Psychologist, 29*, 179-188.

Kijai, J. (1987). School effectiveness characteristics and school incentive reward. Doctoral dissertation, University of South Carolina. (University Microfilms No. 87-14967)

Levine, D. U., & Stark, J. (1981). *Extended summary and conclusions: Institutional and organizational arrangements and processes for comparing academic achievers at inner city elementary schools*. Kansas City: University of Missouri, Center for the Study of Metropolitan Problems.

McGrail, J., Wilson, B. L., Buttram, J. L., & Rossman, G. B. (1987). *Looking at schools: Instruments and processes for school analysis*. Philadelphia, PA: Research for Better Schools.

Moos, R. H. (1973). Conceptualizations of human environments. *American Psychologist, 28*, 652-665.

Moos, R., & Trickett, E. J. (1987). *Manual for the Classroom Environment Inventory*. Palo Alto, CA: Consulting Psychologists Press.

Murphy, J. A. (1987). *Effective schools: A total school system commitment*. Prince George's County, MD: Prince George's County Public Schools.

Payne, R., & Pugh, D. S. (1976). Organizational structure and climate. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 1125-1173). Chicago: Rand McNally.

Pecheone, R., & Shoemaker, J. (1984). *An evaluation of the school effectiveness program in Connecticut*. Hartford, CT: Connecticut State Department of Education.

Proctor, C. P., & Villanova, R. M. (1984). *Handbook for the use of the Connecticut School Effectiveness Interview and Questionnaire*. Hartford, CT: Connecticut State Department of Education.

Purkey, S. C., & Smith, M. S. (1983). Effective schools: A review. *Elementary School Journal, 83*, 427-452.

Ralph, J. H., & Fennessey, J. (1983). Science or reform: Some questions about the effective schools model. *Phi Delta Kappan, 64*, 689-694.

Richards, J. M., Jr. (August, 1988). Methods for environmental assessment and the individual differences fallacy. Paper presented at the meeting of the American Psychological Association, Atlanta.

Rose, Janet S. (1988). *Promotion/retention report, 1986-87. Part III: Promotion/retention, subject area failure, and performance on CCSD's curriculum-referenced tests* (Report No. 87-26 Part III). Charleston, SC: Charleston County School District, Office of Evaluation and Research.

Rowan, B., Bossert, S. T., & Dwyer, D. C. (1983). Research on effective schools: A cautionary note. *Educational Researcher, 12* (April), 24-31.

Segars, J. K., & Gottesman, B. L. (1989, March). The reliability and validity of the effective schools needs assessment surveys. Paper presented at the annual meeting of the American Educational Research Association, San Francisco.

South Carolina. (1984). *The Education Improvement Act of 1984.* Columbia, SC: University of South Carolina, College of Education. (Reprint, 1985).

South Carolina Department of Education. (November, 1987). A preliminary technical report on the field test of the South Carolina Department of Education Needs Assessment Instruments. Columbia, SC: Author.

Stern, G. S. (1970). *People in context: Measuring person-environment congruence in education and industry.* NY: Wiley.

U.S. Department of Education. (1985). *Reaching for excellence: An effective schools sourcebook.* Washington, DC: U.S. Government Printing Office.

Villanova, R. M., Gauthier, W. J., Jr., Proctor, C. P., & Shoemaker, J. (1981). Connecticut school effectiveness questionnaire. Hartford, CT: Connecticut State Department of Education.

Stanley, J. C. (1971). Reliability. In R. L. Thorndike (Ed.), *Educational measurement* (pp. 356-442). Washington, DC: American Council on Education.

Weber, G. (1971). *Inner-city children can be taught to read: Four successful schools.* Washington, DC: Council for Basic Education.

Wilson, B. L., Firestone, W. A., & Herriott, R. E. (1985). The School Assessment Survey. *Educational Leadership, 42* (6), 50-53.

Wynne, E. A. (1980). *Looking at schools: Good, bad, and indifferent.* Lexington, MA: Heath.

Table 1

Correlations Among the Scales of the South Carolina Student and Teacher Surveys

Scale	ILP	EA	HE	PSC	FM	PHS
Student survey (N = 36 schools)						
Instructional leadership of the principal (ILP)	[.94]	.79	.85	.86	.78	.88
Emphasis on academics (EA)	.83	[.95]	.89	.96	.95	.91
High expectations (HE)	.90	.94	[.94]	.93	.88	.92
Positive school climate (PSC)	.90	1.00	.98	[.97]	.91	.92
Frequent monitoring (FM)	.82	.99	.93	.94	[.96]	.94
Positive home-school relations (PHS)	.92	.95	.97	.95	.97	[.97]
Teacher survey (N = 61 schools)						
Instructional leadership of the principal (ILP)	[.95]	.65	.66	.68	.74	.62
Emphasis on academics (EA)	.69	[.94]	.88	.78	.85	.77
High expectations (HE)	.70	.93	[.94]	.77	.90	.75
Positive school climate (PSC)	.73	.85	.83	[.91]	.81	.78
Frequent monitoring (FM)	.79	.91	.97	.89	[.92]	.80
Positive home-school relations (PHS)	.66	.83	.81	.86	.86	[.92]

Note. Alpha reliabilities are shown in the diagonal cells. Correlations below the diagonals are disattenuated for unreliability in the pair of scales (i.e., are estimates of the correlations between the true scores for each pair of scales).

Table 2

Correlations Between the South Carolina State Department of Education's Student and Teacher Scales (N = 36 Schools)

	Teacher scale					
Student scale	ILP	EA	HE	PSC	FM	PHSR
Instructional leadership of principal (ILP)	.34*	.15	.39*	.44**	.38*	.25
Emphasis on academics (EA)	.33*	.28	.47**	.37*	.44**	.27
High expectations (HE)	.35*	.30	.49**	.44**	.44**	.30
Positive school climate (PSC)	.26	.31	.47**	.49**	.42*	.33*
Frequent monitoring (FM)	.26	.28	.47**	.37*	.42**	.25
Positive home/school relations (PHSR)	.27	.30	.52**	.49**	.48**	.36*

Note. Bold entries are correlations between same-named scales.

* $p < .05$
** $p < .01$

Table 3

Correlations Among the Scales of the South Carolina Parent Survey
(N = 61 Schools)

Scale	ILP	EA	HE	PSC	FM	PHSR
Instructional leadership of the principal (ILP)	[.96]	.78	.84	.82	.73	.88
Emphasis on academics (EA)	.83	[.92]	.89	.89	.91	.87
High expectations (HE)	.91	.99	[.88]	.88	.83	.91
Positive school climate (PSC)	.85	.95	.95	.97]	.92	.93
Frequent monitoring (FM)	.77	.97	.91	.96	[.95]	.88
Positive home-school relations (PHSR)	.92	.93	1.00	.96	.92	[.96]

Note. Alpha reliabilities are shown in the diagonal cells. Correlations below the diagonals are disattenuated for unreliability in the pair of scales (i.e., are estimates of the correlations between the true scores for each pair of scales).

Table 4

Correlations Between the South Carolina State Department of Education's Student and Parent Scales (N = 36 Schools)

	Parent scale					
Student scale	ILP	EA	HE	PSC	FM	PHSR
Instructional leadership of principal (ILP)	.61	.66	.62	.68	.72	.68
Emphasis on academics (EA)	.58	.76	.61	.73	.80	.73
High expectations (HE)	.63	.76	.64	.75	.78	.75
Positive school climate (PSC)	.64	.77	.65	.79	.78	.77
Frequent monitoring (FM)	.49	.74	.57	.72	.84	.70
Positive home/school relations (PHSR)	.60	.82	.68	.82	.89	.80

Note. Bold entries are correlations between same-named scales. All correlations are significant at the $p < .01$ level.

Table 5

Correlations Between the South Carolina State Department of Education's Teacher and Parent Scales (N = 61 Schools)

	Parent scale					
Teacher scale	ILP	EA	HE	PSC	FM	PHSR
Instructional leadership of principal (ILP)	.49	.38	.44	.43	.36	.43
Emphasis on academics (EA)	.48	.38	.43	.52	.41	.46
High expectations (HE)	.57	.53	**.57**	.64	.56	.59
Positive school climate (PSC)	.57	.50	.54	**.68**	.54	.58
Frequent monitoring (FM)	.52	.51	.55	.61	**.53**	.54
Positive home/school relations (PHSR)	.51	.46	.54	.56	.42	**.53**

Note. Bold entries are correlations between same-named scales. All correlations are significant at the $p < .01$ level.

Table 6

Correlations Between Student Characteristics or Educational Outcomes and the Scores of the South Carolina School Assessment Survey: Grade 1

Schools' Student Population Characteristics or Educational Outcomes	South Carolina School Assessment Score					
	ILP	EA	HE	PSC	FM	PHSR
Student Instrument (N = 16 schools)						
Mean student age	-.38	-.03	-.15	-.14	.24	-.08
Percentage never retained	.17	-.06	.04	-.03	-.40	-.16
Percentage white	-.27	-.44	-.11	-.08	-.47	-.21
Percentage free/reduced lunch	.26	.43	.13	.13	.58*	.33
Percentage male	-.11	-.05	.08	-.36	-.20	-.34
Mean reading score	.00	-.20	.02	.01	-.49	-.27
Mean math score	-.01	-.15	-.05	-.14	-.48	-.39
% meeting reading criterion	.03	-.05	.13	.11	-.35	-.15
% meeting math criterion	-.02	-.07	.09	-.09	-.39	-.33
% meeting math criterion on time	.07	-.09	.05	-.09	-.46	-.28
% meeting reading crit. on time	.02	-.10	.03	-.03	-.44	-.22
Mean reading, on-time students	.01	-.17	.03	.00	-.47	-.27
Mean math, on-time students	.03	-.15	-.05	- 15	-.48	-.38
Teacher Instrument (N = 37 schools)						
Mean student age	-.44**	-.51***	-.49**	-.45**	-.48**	-.44**
Percentage never retained	.42**	.59***	.59***	.47**	.61***	.53***
Percentage white	.07	.55***	.43**	.35*	.39*	.53***
Percentage free/reduced lunch	-.23	-.67***	-.56***	-.43**	-.51***	-.66***
Percentage male	.24	.06	-.07	.11	.01	.00
Mean reading score	.34*	.77***	.71***	.55***	.59***	.66***
Mean math score	.25	.60***	.58***	.47**	.48**	.46**
% meeting reading criterion	.20	.62***	.57***	.41*	.40*	.44**
% meeting math criterion	.23	.52***	.48**	.39**	.35*	.32
% meeting math criterion on time	.43**	.71***	.68***	.54***	.60***	.54***
% meeting reading crit. on time	.33*	.74***	.72***	.50**	.58***	.56***
Mean reading, on-time students	.32	.77***	.70***	.53***	.60***	.68***
Mean math, on-time students	.29	.64***	.59***	.47**	.51***	.50**
Parent Instrument (N = 37 schools)						
Mean student age	-.36*	.04	.05	-.23	.08	-.15
Percentage never retained	.44**	.00	.07	.22	-.14	.16
Percentage white	.07	-.16	.01	.06	-.25	- 14
Percentage free/reduced lunch	-.24	.08	-.17	-.17	.26	-.02
Percentage male	.15	.04	.16	.15	.15	-.06
Mean reading score	.51***	.06	.31	.35*	-.05	.27
Mean math score	.47**	.08	.35*	.32	.10	.23
% meeting reading criterion	.42**	-.03	.13	.25	-.07	.19
% meeting math criterion	.43**	.02	.19	.25	-.02	.13
% meeting math criterion on time	.54***	.03	.20	.30	-.07	.21
% meeting reading crit. on time	.47**	-.04	.11	.26	-.16	.20
Mean reading, on-time students	.47**	.03	.28	.31	-.08	.23
Mean math, on-time students	.49**	.07	.35*	.31	.10	.24

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 7

Correlations Between Student Characteristics or Educational Outcomes and the Scores of the South Carolina School Assessment Survey: Grade 2

Schools' Student Population Characteristics or Educational Outcomes	South Carolina School Assessment Score					
	ILP	EA	HE	PSC	FM	PHSR
Student Instrument (N = 16 schools)						
Mean student age	-.19	-.03	-.17	-.07	.33	.21
Percentage never retained	.22	-.07	.09	-.04	-.43	-.22
Percentage white	-.34	-.49	-.18	-.12	-.53	-.29
Percentage free/reduced lunch	.26	.46	.16	.13	.57*	.29
Percentage male	-.13	-.13	-.28	-.32	.07	.06
Mean reading score	-.02	-.28	.03	.10	-.43	-.11
Mean math score	.12	-.13	.13	.18	-.41	-.07
% meeting reading criterion	-.02	-.24	.05	.23	-.28	.06
% meeting math criterion	.08	-.12	.13	.25	-.25	.06
% meeting math criterion on time	.22	-.10	.14	.12	-.40	-.12
% meeting reading crit. on time	.12	-.17	.07	.05	-.43	-.18
Mean reading, on-time students	-.09	-.34	-.01	.13	-.42	-.14
Mean math, on-time students	.11	-.16	.09	.21	-.40	-.07
Teacher Instrument (N = 37 schools)						
Mean student age	-.56***	-.69***	-.71***	-.56***	-.63***	-.69***
Percentage never retained	.59***	.69***	.71***	.58***	.65***	.66***
Percentage white	.09	.55***	.43**	.34*	.40*	.58***
Percentage free/reduced lunch	-.21	-.68***	-.58***	-.44**	-.52***	-.69***
Percentage male	-.11	-.03	-.12	.01	-.02	.03
Mean reading score	.20	.65***	.56***	.50***	.52***	.63***
Mean math score	.20	.56***	.52***	.46**	.47**	.54***
% meeting reading criterion	.12	.50**	.42**	.42**	.44**	.56***
% meeting math criterion	.14	.47**	.38*	.33*	.32	.43**
% meeting math criterion on time	.49**	.71***	.68***	.56***	.61***	.68***
% meeting reading crit. on time	.48**	.72***	.71***	.58***	.66***	.71***
Mean reading, on-time students	.08	.57***	.48**	.42**	.42**	.55***
Mean math, on-time students	.13	.5 ***	.49**	.43**	.44**	.53***
Parent Instrument (N = 37 schools)						
Mean student age	-.40*	-.21	-.26	-.40*	.02	-.24
Percentage never retained	.44**	.24	.34*	.45**	.08	.32
Percentage white	.11	-.13	.08	.07	-.26	-.10
Percentage free/reduced lunch	-.25	.03	-.20	-.20	.21	-.06
Percentage male	-.13	-.18	-.09	-.15	-.12	-.24
Mean reading score	.32	.09	.29	.31	.03	.20
Mean math score	.30	-.07	.14	.22	-.17	.15
% meeting reading criterion	.18	.10	.26	.26	.03	.21
% meeting math criterion	.22	-.12	.04	.12	-.17	.15
% meeting math criterion on time	.41*	.13	.28	.39*	-.01	.29
% meeting reading crit. on time	.41*	.24	.38*	.44**	.06	.31
Mean reading, on-time students	.24	.08	.27	.26	.01	.13
Mean math, on-time students	.28	-.06	.16	.21	-.17	.14

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 8

Correlations Between Student Characteristics or Educational Outcomes and the Scores of the South Carolina School Assessment Survey: Grade 3

Schools' Student Population Characteristics or Educational Outcomes	South Carolina School Assessment Score					
	ILP	EA	HE	PSC	FM	PHSR
Student Instrument (N = 16 schools)						
Mean student age	-.21	.02	-.17	-.13	.35	.13
Percentage never retained	.13	-.15	.02	-.03	-.45	-.16
Percentage white	-.31	-.47	-.14	-.10	-.48	-.21
Percentage free/reduced lunch	.21	.40	.11	.13	.55*	.27
Percentage male	.14	.22	.15	.00	.23	.07
Mean reading score	-.33	-.48	-.27	-.18	-.60*	-.38
Mean math score	-.03	-.32	-.18	-.26	-.64*	-.37
% meeting reading criterion	-.45	-.45	-.31	-.28	-.43	-.35
% meeting math criterion	-.16	-.27	-.15	-.42	-.54*	-.34
% meeting math criterion on time	.04	-.24	-.05	-.13	-.54*	-.24
% meeting reading crit. on time	-.09	-.30	-.10	-.10	-.53*	-.28
Mean reading, on-time students	-.35	-.51*	-.28	-.18	-.58*	-.37
Mean math, on-time students	.03	-.34	-.15	-.08	-.56*	-.24
Teacher Instrument (N = 36 to 37 schools)						
Mean student age	-.31	-.50**	-.47**	-.41*	-.48**	-.53***
Percentage never retained	.36*	.50**	.48**	.38*	.45**	.51***
Percentage white	.09	.52***	.42**	.34*	.40*	.56***
Percentage free/reduced lunch	-.20	-.66***	-.55***	-.42**	-.51***	-.68***
Percentage male	-.17	-.21	-.19	-.26	-.26	-.25
Mean reading score	.32	.73***	.59***	.49**	.53***	.73***
Mean math score	.31	.64***	.56***	.49**	.51***	.67***
% meeting reading criterion	.25	.66***	.44**	.47**	.45**	.55***
% meeting math criterion	.30	.57***	.45**	.45**	.47**	.56***
% meeting math criterion on time	.42**	.64***	.59***	.48**	.56***	.64***
% meeting reading crit. on time	.40*	.67***	.59***	.48**	.53***	.60***
Mean reading, on-time students	.29	.71***	.57***	.45**	.49**	.71***
Mean math, on-time students	.28	.64***	.55***	.48**	.50**	.69***
Parent Instrument (N = 36 to 37 schools)						
Mean student age	-.25	-.08	-.22	-.23	.06	-.01
Percentage never retained	.22	.05	.19	.18	-.12	.00
Percentage white	.10	-.11	.08	.08	-.21	-.08
Percentage free/reduced lunch	-.21	.06	-.18	-.15	.21	-.03
Percentage male	-.27	-.22	-.26	-.17	-.13	-.22
Mean reading score	.46**	.02	.18	.22	-.17	.15
Mean math score	.48**	.05	.23	.27	-.05	.21
% meeting reading criterion	.33*	-.11	.03	.14	-.21	.07
% meeting math criterion	.36*	-.01	.10	.14	-.09	.08
% meeting math criterion on time	.37*	.07	.21	.23	-.13	.08
% meeting reading crit. on time	.31	.03	.16	.23	-.19	.03
Mean reading, on-time students	.45**	.08	.21	.23	-.12	.18
Mean math, on-time students	.46**	.11	.27	.32	.01	.25

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 9

Correlations Between Student Characteristics or Educational Outcomes and the Scores of the South Carolina School Assessment Survey: Grade 6

Schools' Student Population Characteristics or Educational Outcomes	South Carolina School Assessment Score					
	ILP	EA	HE	PSC	FM	PHSR
Student Instrument (N = 11 schools)						
Mean student age	-.24	-.12	-.24	-.26	.06	-.27
Percentage never retained	.20	.06	.19	.23	-.14	.26
Percentage white	-.20	-.59	-.44	-.32	-.68*	-.43
Percentage free/reduced lunch	.23	.64*	.49	.34	.74**	.42
Percentage male	.06	.33	.22	.31	.31	.20
Mean reading score	.08	-.27	-.10	.02	-.46	-.01
Mean math score	.13	-.19	-.02	.08	-.40	.08
% meeting reading criterion	.01	-.35	-.20	-.11	-.49	-.12
% meeting math criterion	.10	-.24	-.07	.06	-.44	.03
% meeting math criterion on time	.22	-.04	.13	.21	-.25	.21
% meeting reading crit. on time	.13	-.08	.06	.14	-.28	.13
Mean reading, on-time students	-.08	-.39	-.23	-.09	-.56	-.18
Mean math, on-time students	.05	-.27	-.09	.02	-.46	- 03
Teacher Instrument (N = 15 schools)						
Mean student age	-.29	-.50	-.63*	-.55*	-.50	-.45
Percentage never retained	.34	.60*	.68**	.57*	.53*	.52*
Percentage white	-.09	.12	-.15	.21	.11	.62*
Percentage free/reduced lunch	.16	-.21	.13	-.17	-.08	-.58*
Percentage male	-.25	-.01	-.17	.06	.03	.00
Mean reading score	.19	.55*	.36	.51	.48	.75***
Mean math score	.21	.61*	.43	.53*	.49	.74**
% meeting reading criterion	.08	.44	.22	.31	.29	.54*
% meeting math criterion	.23	.56*	.36	.48	.37	.62*
% meeting math criterion on time	.32	.59*	.59*	.59*	.53*	.65**
% meeting reading crit. on time	.32	.62*	.60*	.56*	.56*	.61*
Mean reading, on-time students	.22	.46	.19	.42	.44	.72**
Mean math, on-time students	.25	.48	.24	.45	.41	.72**
Parent Instrument (N = 15 schools)						
Mean student age	-.64**	-.41	-.42	-.66**	-.32	-.53*
Percentage never retained	.65**	.40	.42	.64**	.29	.53*
Percentage white	-.25	-.43	-.27	-.21	-.55*	-.37
Percentage free/reduced lunch	.22	.44	.25	.19	.60*	.34
Percentage male	-.47	-.16	-.29	-.39	-.20	-.42
Mean reading score	.33	.06	.19	.30	-.14	.13
Mean math score	.45	.20	.29	.42	.02	.29
% meeting reading criterion	.29	-.02	.09	.26	-.20	.07
% meeting math criterion	.43	.16	.21	.42	-.05	.28
% meeting math criterion on time	.60*	.34	.38	.60*	.18	.45
% meeting reading crit. on time	.56*	.28	.34	.54*	.13	.39
Mean reading, on-time students	.08	-.12	-.01	.08	-.33	-.11
Mean math, on-time students	.26	.08	.16	.25	-.10	.11

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 10

Correlations Between Student Characteristics or Educational Outcomes and the Scores of the South Carolina School Assessment Survey: Grade 8

Schools' Student Population Characteristics or Educational Outcomes	South Carolina School Assessment Score					
	ILP	EA	HE	PSC	FM	PHSR
Student Instrument (N = 11 schools)						
Mean student age	-.13	-.12	-.24	-.35	.16	-.37
Percentage never retained	-.02	.10	.12	.22	-.18	.28
Percentage white	-.29	-.62*	-.51	-.32	-.73*	-.47
Percentage free/reduced lunch	.29	.59	.50	.31	.73*	.40
Percentage male	-.77**	-.23	-.61*	-.59	-.30	-.44
Mean reading score	.12	-.03	.06	.21	-.29	.25
Mean math score	-.04	-.13	-.08	.12	-.39	.15
% meeting reading criterion	.04	-.17	-.02	.12	-.41	.16
% meeting math criterion	-.11	-.15	-.14	.01	-.38	.11
% meeting math criterion on time	.03	.01	.08	.22	-.27	.25
% meeting reading crit. on time	.05	.03	.12	.24	-.24	.27
Mean reading, on-time students	.15	-.04	.05	.21	-.26	.24
Mean math, on-time students	-.02	-.25	-.15	.09	-.48	.06
Teacher Instrument (N = 14 schools)						
Mean student age	-.22	-.58*	-.52	-.65*	-.70**	-.86***
Percentage never retained	.17	.56*	.53	.56*	.66*	.84***
Percentage white	-.08	01	-.22	.17	.00	.59
Percentage free/reduced lunch	.14	-.07	.14	-.17	-.02	-.63*
Percentage male	-.19	-.07	-.25	-.25	-.16	.20
Mean reading score	.06	.47	.37	.47	.45	.79***
Mean math score	.08	.50	.32	.53	.46	.83***
% meeting reading criterion	-.09	.30	.11	.37	.28	.75**
% meeting math criterion	-.03	.41	.20	.40	.33	.76**
% meeting math criterion on time	.11	.53*	.47	.58*	.60*	.86***
% meeting reading crit. on time	.11	.50	.45	.58*	.60*	.86***
Mean reading, on-time students	-.12	.35	.24	.40	.31	.71**
Mean math, on-time students	.00	.39	.16	.48	.33	.78***
Parent Instrument (N = 14 schools)						
Mean student age	-.49	-.44	-.42	-.69**	-.17	-.42
Percentage never retained	.53	.42	.41	.66**	.21	.46
Percentage white	-.14	-.37	-.28	-.04	-.59*	-.25
Percentage free/reduced lunch	-.02	.28	.10	-.12	.48	.05
Percentage male	-.12	-.26	-.31	-.20	-.32	-.09
Mean reading score	.59*	.36	.46	.64*	.14	.48
Mean math score	.52	.26	.38	.59*	.03	.48
% meeting reading criterion	.36	.24	.30	.50	-.07	.28
% meeting math criterion	.48	.24	.36	.55*	.02	.48
% meeting math criterion on time	.57*	.38	.46	.69**	.17	.50
% meeting reading crit. on time	.49	.38	.40	.65*	.12	.41
Mean reading, on-time students	.53	.30	.41	.58*	.08	.40
Mean math, on-time students	.42	.14	.30	.50	-.11	.36

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 11

Correlations Between Student Characteristics or Educational Outcomes and the Scores of the South Carolina School Assessment Survey: Grade 10

Schools' Student Population Characteristics or Educational Outcomes	South Carolina School Assessment Score					
	ILP	EA	HE	PSC	FM	PHSR
Student Instrument (N = 9 schools)						
Mean student age	.40	.01	.09	.07	17	.34
Percentage never retained	-.18	.18	.12	.10	.08	-.11
Percentage white	-.83**	-.70*	-.68*	-.54	-.77*	-.84**
Percentage free/reduced lunch	.83**	.72*	.72*	.60	.82**	.85**
Percentage male	.16	.20	.12	.17	.14	.20
Mean reading score	-.83**	- 63	-.69*	-.52	-.75*	-.79*
Mean math score	-.82**	-.62	-.66	-.51	-.74*	-.79*
% meeting reading criterion	-.83**	-.70*	-.69*	-.55	-.77*	-.82**
% meeting math criterion	-.82**	-.72*	-.72*	-.59	-.81**	-.83**
% meeting math criterion on time	-.74*	-.39	-.47	-.39	-.55	-.67*
% meeting reading crit. on time	-.66	-.20	-.35	-.30	-.38	-.52
Mean reading, on-time students	-.84**	-.67*	-.72*	-.53	-.77*	-.81**
Mean math, on-time students	-.82**	-.66	-.70*	-.53	-.77*	-.80**
Teacher Instrument (N = 9 schools)						
Mean student age	.07	-.29	-.02	-.21	-.08	-.62
Percentage never retained	.10	.43	.21	.36	.20	.59
Percentage white	-.53	-.24	-.46	-.36	-.33	.34
Percentage free/reduced lunch	.56	.37	.58	.43	.41	-.20
Percentage male	.48	.63	.60	.39	.62*	.56
Mean reading score	-.50	-.15	-.37	-.37	-.26	.47
Mean math score	-.49	-.21	-.43	-.31	-.28	.42
% meeting reading criterion	-.61	-.36	-.54	-.40	-.43	.29
% meeting math criterion	-.57	-.35	-.53	-.39	-.38	.27
% meeting math criterion on time	-.41	-.08	-.34	-.13	-.25	.50
% meeting reading crit. on time	-.36	.00	-.26	-.06	-.23	.54
Mean reading, on-time students	-.53	-.20	-.42	-.43	-.30	.40
Mean math, on-time students	-.51	-.25	-.47	-.38	-.32	.36
Parent Instrument (N = 9 schools)						
Mean student age	.14	-.47	-.34	-.38	-.20	-.26
Percentage never retained	-.19	.54	.48	.48	.39	.35
Percentage white	-.12	-.19	-.36	-.24	-.55	-.33
Percentage free/reduced lunch	.05	.24	.41	.26	.60	.32
Percentage male	.38	.60	.43	.11	.41	.20
Mean reading score	-.15	-.16	-.37	-.28	-.48	-.38
Mean math score	-.06	-.11	-.29	-.17	-.45	-.25
% meeting reading criterion	-.17	-.28	-.43	-.28	-.58	-.35
% meeting math criterion	-.05	-.23	-.40	-.29	-.58	-.33
% meeting math criterion on time	-.21	.12	-.04	.09	-.19	-.03
% meeting reading crit. on time	-.36	.22	.09	.21	.02	.07
Mean reading, on-time students	-.14	-.24	-.45	-.34	-.55	-.44
Mean math, on-time students	-.05	-.20	-.38	-.25	-.52	-.32

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 12

Partial Correlations of South Carolina Needs Assessment Scores with Educational Outcomes Controlling for Percentage Black and Percentage of Students Receiving Free or Reduced Lunch: Grade 1

SC Needs Assessment Score	Mean score:		% meeting criterion		% meeting criterion on time:		Mean score, on-time students:	
	reading	math	reading	math	math	reading	reading	math
Teacher survey (N = 37 schools)								
Instructional leadership of principal	.20	.10	.06	.11	.32	.18	.18	.13
Emphasis on academics	.51**	.37*	.38*	.30	.50**	.52***	.49**	.40*
High expectations	.50**	.37*	.35*	.27	.49**	.53***	.49**	.36*
Positive school climate	.37*	.30	.21	.22	.38*	.30	.33	.29
Frequent monitoring	.32	.26	.13	.12	.40*	.35*	.33*	.27
Positive home-school relations	.29	.14	.09	-.03	.19	.19	.30	.15
Parent survey (N = 37 schools)								
Instructional leadership of principal	.48**	.38*	.35*	.35*	.46**	.38*	.45**	.40*
Emphasis on academics	.15	.10	.00	.03	.04	-.04	.12	.10
High expectations	.22	.26	.01	.09	.05	-.09	.19	.26
Positive school climate	.31	.23	.17	.17	.20	.14	.25	.22
Frequent monitoring	.24	.29	.10	.12	.11	.01	.23	.31
Positive home-school relations	.34*	.20	.20	.10	.17	.16	.31	.22

* $p < .05$
** $p < .01$
*** $p < .001$

Table 13

Partial Correlations of South Carolina Needs Assessment Scores with Educational Outcomes Controlling for Percentage Black and Percentage of Students Receiving Free or Reduced Lunch: Grade 2

SC Needs Assessment Score	Mean score: reading	Mean score: math	% meeting criterion: reading	% meeting criterion: math	% meeting criterion on time: math	% meeting criterion on time: reading	Mean score, on-time students: reading	Mean score, on-time students: math
Teacher survey (N = 37 schools)								
Instructional leadership of principal	.04	.09	.01	.03	.43*	.43**	-.16	-.01
Emphasis on academics	.23	.19	.17	.11	.35*	.36*	.08	.11
High expectations	.17	.23	.14	.05	.36*	.43**	.04	.15
Positive school climate	.27	.25	.24	.09	.34*	.38*	.14	.20
Frequent monitoring	.18	.20	.20	.01	.34	.42*	.02	.13
Positive home-school relations	.14	.12	.25	.01	.29	.35*	.00	.07
Parent survey (N = 37 schools)								
Instructional leadership of principal	.20	.22	.08	.11	.25	.26	.08	.18
Emphasis on academics	.19	-.05	.20	-.12	.14	.34*	.20	-.04
High expectations	.21	.01	.22	-.10	.11	.28	.20	.04
Positive school climate	.26	.14	.23	.01	.26	.37*	.19	.12
Frequent monitoring	.33*	-.02	.24	05	.14	.27	.31	-.02
Positive home-school relations	.26	.19	.31	.17	.24	.29	.17	.18

* $p < .05$
** $p < .01$
*** $p < .001$

Table 14

Partial Correlations of South Carolina Needs Assessment Scores with Educational Outcomes Controlling for Percentage Black and Percentage of Students Receiving Free or Reduced Lunch: Grade 3

SC Needs Assessment Score	Mean score: reading	Mean score: math	% meeting criterion: reading	% meeting criterion: math	% meeting criterion on time: math	% meeting criterion on time: reading	Mean score, on-time students: reading	Mean score, on-time students: math
Teacher survey (N = 36 schools)								
Instructional leadership of principal	.22	.19	.13	.22	.39*	.35*	.18	.14
Emphasis on academics	.41*	.28	.40*	.27	.26	.31	.39*	.29
High expectations	.23	.24	.11	.16	.27	.27	.23	.22
Positive school climate	.27	.29	.29	.26	.26	.27	.20	.27
Frequent monitoring	.20	.22	.18	.22	.28	.23	.15	.19
Positive home-school relations	.39*	.34*	.22	.25	.24	.17	.37*	.38*
Parent survey (N = 36 schools)								
Instructional leadership of principal	.46*	.41*	.21	.29	.28	.19	.42*	.38*
Emphasis on academics	.08	.08	-.13	.02	.14	.08	.17	.17
High expectations	.00	.09	-.15	-.03	.07	-.01	.07	.15
Positive school climate	.13	.19	.03	.05	.14	.14	.14	.26
Frequent monitoring	-.03	.12	-.12	.04	.02	-.08	.05	.20
Positive home-school relations	.14	.17	.01	.05	.02	-.07	.18	.24

* $p < .05$
** $p < .01$
*** $p < .001$

Table 15

Correlations of the South Carolina Needs Assessment Scores with Aggregated Residual Gain Scores: Elementary Grades

SC Needs Assessment	Reading gain scores for grade: 1	2	3	4	5	Math gain scores for grade: 1	2	3	4	5
Student survey (N = 16)										
Instructional leadership of principal	07	-21	-10	-12	-02	21	06	35	01	36
Emphasis on academics	-12	-35	-12	-02	-18	16	-22	17	29	04
High expectations	06	-12	01	23	-08	11	-04	12	45	09
Positive school climate	10	04	13	06	-30	06	01	-15	28	-03
Frequent monitoring	-34	-49	-10	-11	-17	-01	-54*	-14	27	-13
Positive home-school relations	-25	-20	12	05	00	-11	-17	-01	22	09
Teacher survey (N = 36 - 37)										
Instructional leadership of principal	30	08	08	07	09	07	10	27	-13	34*
Emphasis on academics	65***	51***	21	42**	34*	22	38*	25	10	44**
High expectations	59***	48**	26	40*	22	23	40*	31	09	35*
Positive school climate	49**	42**	14	12	10	22	36*	21	-21	40*
Frequent monitoring	47**	41*	28	31	10	16	34*	33*	-11	35*
Positive home-school relations	48**	36*	41*	37*	21	09	31	42*	-03	34*
Parent survey (N = 36 - 37)										
Instructional leadership of principal	43*	15	33*	15	19	35*	15	41*	-03	42**
Emphasis on academics	03	02	11	00	02	10	-14	13	-06	11
High expectations	23	14	16	15	11	26	02	26	-10	18
Positive school climate	30	28	03	-01	06	23	15	12	-26	26
Frequent monitoring	-02	-06	-15	-24	-03	29	-23	06	-32	17
Positive home-school relations	21	-01	11	02	06	19	02	22	-18	19

Note. Decimals omitted.

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 16

Correlations of the South Carolina Needs Assessment Scores with Aggregated Residual Gain Scores: Middle and Secondary Grades

SC Needs Assessment	Reading gain scores for grade: 6	7	8	9	10	Math gain scores for grade: 6	7	8	9	10
Student survey										
Instructional leadership of principal	21	09	38	-78*	00	11	-15	-11	28	-35
Emphasis on academics	41	-35	70*	-60	-34	35	-27	36	34	-58
High expectations	35	-19	63*	-62	-29	29	-21	17	47	-54
Positive school climate	21	00	50	-50	-24	15	-08	14	35	-40
Frequent monitoring	39	-53	61*	-68*	-23	37	-45	24	34	-59
Positive home-school relations	28	01	72*	-80**	-02	22	-10	37	17	-39
(N)	(11)	(11)	(11)	(9)	(9)	(11)	(11)	(11)	(9)	(9)
Teacher survey										
Instructional leadership of principal	26	01	04	-55	49	15	31	07	36	-36
Emphasis on academics	15	31	33	-23	-68*	02	41	37	44	-47
High expectations	19	23	30	-53	-38	05	42	22	32	-38
Positive school climate	02	39	02	-51	-47	-09	52	22	56	-40
Frequent monitoring	01	21	27	-45	-47	-16	31	29	35	-23
Positive home-school relations	-35	81***	-19	13	-45	-40	49	12	21	-08
(N)	(15)	(14)	(14)	(9)	(9)	(15)	(14)	(14)	(9)	(9)
Parent survey										
Instructional leadership of principal	48	46	56*	-33	-13	40	54*	45	14	29
Emphasis on academics	41	10	76**	-31	-70*	40	17	45	56	-44
High expectations	21	33	62*	-46	-70*	17	39	42	60	-54
Positive school climate	42	42	56*	-24	-72*	37	36	45	59	-54
Frequent monitoring	38	-05	72**	-58	-52	43	23	40	41	-59
Positive home-school relations	37	39	56*	-44	-55	40	60*	59*	53	-40
(N)	(15)	(14)	(14)	(9)	(9)	(15)	(14)	(14)	(9)	(9)

Note. Decimals omitted.

* $p < .05$ ** $p < .01$ *** $p < .001$

Table A-1

Descriptive Information fo School Aggregates: Demographic and Testing Program Data

Variable	Grade 1	2	3	6	8	10
Mean student age	7.21	8.35	9.45	12.58	14.72	16.68
% never retained	80	71	65	59	53	57
% white	39	40	39	37	42	39
% free or reduced lunch	58	56	56	57	47	33
% male	52	50	50	52	48	46
% meeting reading criterion	85	88	92	82	79	81
% meeting math criterion	87	90	87	73	74	76
% math criterion on time	68	65	57	49	46	48
% reading criterion on time	67	64	61	52	47	52
Mean reading score	813	806	808	767	764	779
Mean reading for on-level students	810	817	819	782	790	810
Mean math score	793	804	805	748	746	755
Mean math for on-level students	790	809	815	769	768	778
(Number of schools)	(42)	(42)	(42)	(18)	(16)	(11)

Table A-2

Item-Scale Correlations: South Carolina Student Survey

Item	Student Scale ILP	EA	HE	PSC	FM	PHSR
Items scored for Instructional Leadership of Principal						
1	.87	.79	.76	.79	.66	.79
2	.82	.58	.66	.69	.61	.76
3	.78	.57	.67	.67	.58	.74
4	.79	.81	.81	.78	.87	.89
5	.69	.58	.64	.61	.57	.58
6	.85	.57	.66	.68	.55	.68
7	.44	.37	.44	.49	.23	.31
8	.84	.67	.72	.68	.71	.76
9	.88	.76	.83	.79	.76	.84
10	.80	.83	.86	.81	.78	.82
Items scored for Emphasis on Academics						
11	.64	.85	.83	.82	.92	.84
12	.64	.87	.80	.78	.92	.84
13	.66	.75	.71	.69	.82	.80
14	.65	.78	.80	.70	.80	.70
15	.69	.82	.85	.75	.74	.71
16	.76	.90	.89	.86	.83	.81
17	.75	.83	.89	.88	.85	.86
18	.41	.45	.57	.46	.37	.41
19	.69	.82	.80	.77	.87	.85
20	.70	.86	.85	.72	.83	.78
Items scored for High Expectations						
21	.85	.81	.77	.79	.82	.87
22	.81	.85	.87	.79	.79	.82
23	.75	.84	.82	.79	.81	.80
24	.64	.67	.69	.68	.58	.67
25	.84	.88	.88	.86	.89	.91
26	.68	.79	.76	.78	.76	.79
27	.56	.69	.69	.68	.63	.56
28	.59	.74	.69	.69	.74	.71
29	.70	.84	.81	.86	.80	.76
30	.64	.80	.81	.74	.72	.67

Continued . . .

Table A-2, continued

	Student Scale					
Item	ILP	EA	HE	PSC	FM	PHSR
Items scored for Positive School Climate						
31	.68	.65	.72	.82	.65	.70
32	.75	.76	.82	.89	.79	.87
33	.85	.76	.82	.87	.75	.86
34	.78	.88	.89	.9[illegible]	.87	.84
35	.75	.76	.84	.89	.70	.81
36	.86	.78	.84	.83	.81	.90
37	.67	.65	.73	.84	.68	.75
38	.77	.94	.91	.86	.94	.87
39	.75	.93	.91	.91	.91	.90
40	.70	.90	.87	.84	.87	.80
Items scored for Frequent Monitoring						
41	.66	.87	.79	.77	.87	.77
42	.66	.83	.80	.81	.88	.84
43	.71	.88	.83	.83	.92	.87
44	.68	.89	.84	.79	.91	.85
45	.74	.84	.80	.77	.88	.89
46	.55	.70	.68	.63	.79	.72
47	.66	.84	.82	.87	.90	.86
48	.79	.94	.93	.86	.91	.90
49	.84	.91	.91	.89	.90	.91
50	.70	.83	.84	.77	.83	.83
Items scored [illegible]r Positive Home/School Relations						
51	.85	.81	.87	.92	.82	.89
52	.77	.93	.90	.86	.93	.91
53	.75	.83	.78	.80	.91	.92
54	.73	.83	.80	.78	.90	.83
55	.89	.80	.83	.85	.86	.92
56	.66	.61	.67	.66	.68	.70
57	.83	.84	.85	.85	.85	.91
58	.81	.75	.82	.83	.80	.85
59	.83	.83	.85	.83	.83	.87
60	.71	.71	.68	.71	.75	.79

Note. Item-scale correlations are corrected for part-whole relationships. ILP = Instructional Leadership of Principal. EA = Emphasis on Academics. HE = High Expectations. PSC = Positive School Climate. FM = Frequent Monitoring. PHSR = Positive Home/School Relations.

Table A-3

Item-Scale Correlations: South Carolina Teacher Survey

Item	Teacher Scale ILP	EA	HE	PSC	FM	PHSR
Items scored for Instructional Leadership of Principal						
1	.90	.72	.74	.79	.70	.84
2	.87	.69	.70	.74	.67	.83
3	.79	.71	.78	.71	.63	.77
4	.77	.69	.76	.77	.69	.78
5	.86	.72	.82	.72	.65	.78
6	.58	.75	.83	.77	.70	.83
7	.87	.90	.79	.82	.85	.80
8	.76	.90	.78	.81	.85	.78
9	.79	.94	.83	.84	.90	.82
10	.63	.88	.80	.81	.83	.79
Items scored for Emphasis on Academics						
11	.71	.68	.80	.88	.84	.80
12	.72	.79	.73	.83	.79	.77
13	.75	.76	.79	.78	.72	.76
14	.43	.72	.50	.54	.61	.52
15	.01	.86	-.01	-.04	-.04	-.06
16	.43	.72	.57	.46	.48	.52
17	.71	.81	.87	.80	.83	.80
18	.46	.64	.65	.55	.55	.55
19	.39	.83	.67	.50	.49	.51
20	.78	.83	.89	.85	.83	.84
Items scored for High Expectations						
21	.66	.57	.67	.54	.44	.61
22	.56	.44	.81	.47	.39	.55
23	.79	.81	.74	.85	.78	.90
24	.55	.63	.82	.78	.69	.72
25	.80	.88	.74	.95	.89	.89
26	.79	.80	.74	.95	.86	.86
27	.87	.85	.82	.94	.85	.92
28	.73	.88	.79	.92	.88	.82
29	.77	.78	.84	.89	.83	.87
30	.70	.78	.81	.91	.78	.80

Continued . . .

Table A-3, continued

Item	Teacher Scale ILP	EA	HE	PSC	FM	PHSR
Items scored for Positive School Climate						
31	.73	.80	.80	.39	.75	.78
32	.72	.83	.80	.78	.7	.85
33	.68	.84	.76	.83	.89	.78
34	.67	.85	.77	.80	.90	.78
35	.66	.84	.77	.75	.92	.84
36	.69	.82	.80	.63	.93	.81
37	.65	.78	.69	.77	.92	.78
38	.48	.66	.53	.77	.76	.60
39	.74	.83	.78	.87	.93	.83
40	.61	.75	.65	.77	.80	.68
Items scored for Frequent Monitoring						
41	.59	.77	.73	.81	.53	.73
42	.82	.77	.83	.89	.79	.92
43	.85	75	.78	.80	.78	.90
44	.73	.81	.81	.85	.70	.90
45	.77	.82	.82	.86	.84	.89
46	.78	.83	.84	.84	.81	.91
47	.71	.70	.72	.75	.65	.84
48	82	.72	.81	.78	.85	.86
49	.55	.78	.74	.68	.86	.74
50	.77	.67	.78	.78	.84	.84
Items scored for Positive Home/School Relations						
51	.52	.63	.61	.71	.62	.59
52	.36	.59	.59	.61	.61	.80
53	.30	.44	.46	.52	.51	.67
54	.57	.77	.73	.74	.77	.85
55	.72	.65	.63	.60	.65	.77
56	.60	.64	.63	.63	.74	.70
57	.49	.64	.61	.65	.65	.86
58	.76	.68	.71	.69	.71	.75
59	.50	.71	.71	.70	.7	.91
60	.64	.71	.68	.71	.72	.79

Note. Item-scale correlations are corrected for part-whole relationships. ILP = Instructional Leadership of Principal. EA = Emphasis on Academics. HE = High Expectations. PSC = Positive School Climate. FM = Frequent Monitoring. PHSR = Positive Home/School Relations.

Table A-4

Item-Scale Correlations: South Carolina Parent Survey

	Parent Scale					
Item	ILP	EA	HE	PSC	FM	PHSR
Items scored for Instructional Leadership of Principal						
1	.91	.72	.74	.79	.70	.84
2	.87	.69	.70	.74	.67	.83
3	.87	.71	.78	.71	.63	.77
4	.87	.69	.76	.77	.69	.78
5	.8[illegible]	.72	.82	.72	.65	.78
6	.90	.75	.83	.77	.70	.83
Items scored for Emphasis on Academics						
7	.77	.88	.79	.82	.85	.80
8	.69	.85	.78	.81	.85	.78
9	.71	.92	.83	.84	.90	.82
10	.71	.84	.80	.81	.83	.79
11	.71	.85	.80	.88	.84	.80
12	.72	.82	.73	.83	.79	.77
13	.75	.78	.79	.78	.72	.76
14	.43	.64	.50	.54	.61	.52
15	.01	-.01	-.01	-.04	-.04	-.06
16	.43	.52	.57	.46	.48	.52
Items scored for High Expectations						
17	.71	.86	.81	.80	.83	.80
18	.46	.59	.58	.55	.55	.55
19	.39	.55	.57	.50	.49	.51
20	.78	.86	.82	.85	.83	.84
21	.66	.57	.60	.54	.44	.61
22	.56	.44	.58	.47	.39	.55
23	.79	.81	.86	.85	.78	.90

Continued . . .

Table A-4, continued

Item	Parent Scale ILP	EA	HE	PSC	FM	PHSR
Items scored for Positive School Climate						
24	.55	.63	.63	.72	.69	.72
25	.80	.88	.83	.94	.89	.89
26	.79	.80	.80	.93	.86	.86
27	.87	.85	.86	.92	.85	.92
28	.73	.88	.86	.91	.88	.82
29	.77	.78	.82	.86	.83	.87
30	.70	.78	.75	.88	.78	.80
31	.73	.80	.80	.81	.75	.78
32	.72	.83	.80	.87	.87	.85
33	.68	.84	.76	.87	.89	.78
Items scored for Frequent Monitoring						
34	.67	.85	.77	.86	.81	.78
35	.66	.84	.77	.83	.83	.84
36	.69	.82	.80	.84	.84	.81
37	.65	.78	.69	.81	.84	.78
38	.48	.66	.53	.65	.65	.60
39	.74	.83	.78	.88	.85	.83
40	.61	.75	.65	.72	.76	.68
41	.59	.77	.73	.81	.75	.73
Items scored for Positive Home/School Relations						
42	.82	.77	.83	.89	.78	.88
43	.85	.75	.78	.80	.73	.87
44	.73	.81	.81	.85	.87	.87
45	.77	.82	.82	.86	.86	.87
46	.78	.83	.84	.84	.84	.89
47	.71	.70	.72	.75	.68	.81
48	.82	.72	.81	.78	.68	.83
49	.55	.78	.74	.68	.77	.69
50	.77	.67	.78	.78	.67	.80

Note. Item-scale correlations are corrected for part-whole relationships. ILP = Instructional Leadership of Principal. FA = Emphasis on Academics. HE = High Expectations. PSC = Positive School Climate. FM = Frequent Monitoring. PHSR = Positive Home/School Relations.

Table A-5

School-Level Correlations Between Student Demographic Characteristics and Aggregate Educational Outcomes (Grades 1, 2, 3, 6, 8, and 10)

Demographic characteristics	Educational outcomes: Mean Reading	Mean Math	% Meeting Reading Crit.	% Meeting Math Crit.	% Meeting Crit. On-Time Math	% Meeting Crit. On-Time Reading	Mean for On-Level Students Reading	Mean for On-Level Students Math
Grade 1 (N = 42 schools)								
Mean age	-.43	-.30	-.35	-.26	-.66	-.69	-.45	-.34
% never retained	.52	.40	.37	.33	.75	.77	.56	.45
% white	.64	.41	.48	.39	.47	.51	.69	.45
% free/reduced lunch	-.76	-.52	-.56	-.47	-.59	-.64	-.80	-.57
% male	-.05	.11	-.06	.15	.00	-.15	-.06	.07
Grade 2 (N = 42 schools)								
Mean age	-.55	-.54	-.31	-.38	-.88	-.90	-.45	-.49
% never retained	.60	.55	.29	.38	.92	.93	.48	.51
% white	.75	.67	.63	.58	.59	.62	.76	.70
% free/reuced lunch	-.81	-.70	-.64	-.62	-.72	-.74	-.80	-.73
% male	.01	-.04	-.05	-.11	-.12	-.11	-.01	-.01
Grade 3 (N = 41 schools)								
Mean age	-.55	-.54	-.21	-.40	-.88	-.89	-.50	-.54
% never retained	.56	.51	.17	.37	.92	.94	.52	.52
% white	.67	.52	.47	.52	.62	.60	.64	.52
% free/reduced lunch	-.80	-.68	-.59	-.60	-.74	-.73	-.76	-.67
% male	-.29	-.14	-.38	-.28	-.23	-.17	-.22	-.12
Grade 6 (N = 18 schools)								
Mean age	-.70	-.68	-.66	-.70	-.95	-.95	-.58	-.56
% never retained	.68	.61	.57	.61	.95	.95	.58	.46
% white	.76	.58	.57	.46	.48	.50	.88	.67
% free/reduced lunch	-.77	-.56	-.59	-.46	-.53	-.57	-.88	-.61
% male	-.16	-.32	-.42	-.45	-.34	-.33	.00	-.23
Grade 8 (N = 16 schools)								
Mean age	-.89	-.85	-.84	-.80	-.95	-.98	-.87	-.81
% never retained	.90	.88	.81	.83	.98	.98	.83	.80
% white	.66	.64	.74	.62	.58	.60	.71	.75
% free/reduced lunch	-.76	-.76	-.82	-.75	-.70	-.69	-.78	-.84
% male	.33	.47	.36	.57	.36	.32	.34	.44
Grade 10 (N = 11 schools)								
Mean age	-.57	-.58	-.48	-.46	-.85	-.89	-.48	-.46
% never retained	.36	.35	.30	.19	.66	.78	.24	.20
% white	.97	.97	.98	.95	.88	.75	.95	.95
% free/reduced lunch	-.92	-.91	-.97	-.91	-.79	-.64	-.92	-.92
% male	-.05	-.07	-.29	-.10	-.02	-.02	-.10	-.12

Table A-6

Correlations Among the Scales of the Connecticut School Effectiveness Questionnaire

Scale	Safe & Orderly Environment	Clear School Mission	Instructional Leadership	High Expectations	Opportunity to Learn & Time on Task	Monitoring Student Progress	Home/School Relations
Correlations Time 1 Scores with Time 2 Scores (Retest Reliabilities on Diagonal)							
Safe & Orderly Environment	0.96	0.72	0.52	0.67	0.87	0.78	0.88
Clear School Mission	0.48	0.84	0.55	0.31	0.64	0.65	0.44
Instructional Leadership	0.12	0.30	0.92	0.09	0.22	0.29	0.21
High Expectations	0.71	0.55	0.21	0.81	0.70	0.47	0.77
Opportunity to Learn & Time on Task	0.88	0.88	0.48	0.90	0.91	0.85	0.92
Monitoring Student Progress	0.70	0.85	0.61	0.65	0.85	0.78	0.72
Home/School Relations	0.87	0.71	0.56	0.83	0.87	0.70	0.92
Correlations Among Time 1 Scores (Above Diagonal) and Among Time 2 Scores (Below Diagonal)							
Safe & Orderly Environment	--	0.49	0.19	0.63	0.76	0.69	0.85
Clear School Mission	0.78	--	0.45	0.35	0.55	0.84	0.53
Instructional Leadership	0.45	0.54	--	0.07	0.21	0.46	0.34
High Expectations	0.81	0.67	0.32	--	0.75	0.68	0.89
Opportunity to Learn & Time on Task	0.94	0.88	0.51	0.87	--	0.73	0.83
Monitoring Student Progress	0.86	0.89	0.57	0.76	0.94	--	0.83
Home/School Relations	0.95	0.76	0.52	0.87	0.92	0.81	--

Note. $N = 10$ schools. Based on a reanalysis of data presented by Pecheone and Shoemaker (1984, pp. F1-F7).