

**Value-Added Achievement Results for Two Cohorts of
Co-NECT Schools in Memphis: 1995-1999 Outcomes**

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This special report extends our broader study (e.g., Ross, Sanders, Stringfield, Wang, & Wright, 1999) of longitudinal student achievement at schools in the Memphis City Schools (MCS) district that implemented comprehensive school reform (CSR) designs. It also extends the study by Ross, Lowther, and Plants (in preparation) of the implementation of the Co-NECT design in Memphis and the associated effects on school climate, teaching methods, technology use, and teacher/principal experiences. The focus of this study is the progress of two cohorts of Co-NECT schools, one that began in the 1995-96 school year and the other in the 1997-98 school year, in raising student achievement as compared to control schools.

Co-NECT is one of eight CSR designs sponsored by New American Schools, a private, non-profit corporation established in 1991 to develop, promote, and support replicable and effective educational reform programs (Stringfield, Ross, & Smith, 1996). Descriptions of the primary elements of Co-NECT can be found on their website as well as in publications such as Stringfield et al. (1996) and Herman (1999). These elements, in brief, stress improvement of the school organization, a full-time site director to work with Co-NECT schools in a district, project-based learning, extensive technology use and integration with the curriculum, substantial professional development and technical assistance, family and community involvement, and continual and thorough monitoring of student progress and performance.

Design

The present analyses examined the progress of 4 Co-NECT schools that began implementation in the 1995-96 school year and 2 that began in 1997-98. The time span for the data analyses was spring testing for the years 1994-95 to 1998-99. Thus, in the most recent year of testing (1999), the two cohorts of Co-NECT schools had respectively completed four and two years of implementation. These schools were compared in inferential statistical analyses to 23 MCS elementary schools that did not implement a comprehensive school reform (CSR) design and thus, were established as control schools. In prior years, we had employed a matched sample of control schools, but due to changes in schools' status (specifically, control schools choosing to implement CSR designs in different years), the control group could not be maintained. However, because the present study uses "value-added" achievement data from the Tennessee Value-Added Assessment System (TVAAS; see description below), controls for student prior achievement, socioeconomic status, and mobility are built-in to the assessment, making a matched-control school design much less critical. So that readers can gauge the progress of Co-NECT schools relative to other school groupings, we also provide, in our reporting of descriptive data, the outcomes for other schools implementing CSR designs in Memphis each year and all elementary schools in the State of Tennessee.

Achievement Analyses

Student achievement was assessed using "value-added" achievement scores on the Tennessee Value-Added Assessment System (TVAAS) developed by William Sanders and associates at The University of Tennessee. The rationale for TVAAS was to provide student and teacher performance scores free of the biases normally associated with standardized test

outcomes data (Sanders & Horn, 1995a, 1995b). By measuring the amount that students gain in their standardized test scale scores from one year to the next, TVAAS scores reflect growth regardless of initial level of performance. The resultant estimates of student and teacher effects have been demonstrated to be statistically independent of socioeconomic confounding and do not require direct measures of these variables (Sanders & Horn, 1995a, 1995b; Wright, Horn, & Sanders, 1997).

The time period for the data analyzed in the present study ranges from spring-1995 to spring-1999. In each of those years, students throughout the State of Tennessee were mandated to participate in the Tennessee Comprehensive Assessment Program (TCAP). From 1995-97, TCAP was a form of the CTBS-4 (CTB/McGraw-Hill, 1990). In 1998, the state-mandated standardized test employed for TCAP was the TerraNova or CTBS-5 (CTB/MacMillan/McGraw Hill, 1997). An equating analysis conducted by William Sanders and his staff in 1999 allowed for the conversion of TCAP scores to the TerraNova scale so that longitudinal effects could be determined (personal communication, William Sanders, April, 1999). In Memphis City Schools, CTBS/5 had been administered in Grade 3, thereby allowing for the computation of TVAAS scores in grades 4 and 5 for five subjects (math, reading, language, science, and social studies) and all subjects averaged.

The index of student achievement used in the present analyses is *the Cumulative Percent of Norm (CPN)* mean. This statistic indicates across all grades reported the percent of the national norm gain. For example, if School A had a CPN gain of 100% in math, it would have achieved at the national or expected level of achievement gain for that subject for that year.

Results

Because the scores on the five subtests of TerraNova are highly correlated, the results below are reported for all subjects averaged, which is considered a more reliable measure of achievement than any given subtest and substantially less subject to year-to-year fluctuations in value-added scores due to item content or difficulty. Descriptive results for the Co-NECT cohorts relative to different comparison groups are shown in Figures 1 and 2, respectively.

1995 Cohort

Descriptive results. Figure 1 summarizes *CPN* results (see description above) for the 4 Co-NECT schools that began restructuring in 1995 (“CON-95”) compared to 16 schools that implemented “Other” restructuring designs, 23 control or non-restructuring (NR) schools, and the 839 elementary schools in the State of Tennessee. The Other designs consisted of ATLAS, Expeditionary Learning Outward Bound, Audrey Cohen College, Modern Red Schoolhouse, Roots and Wings, Paideia, and Accelerated Schools. As can be seen from the figure, during the pre-reform year, CON-95 began by scoring lower ($M = 99$) than the NR schools ($M = 122$), the Other design schools ($M = 112$) and the State ($M = 109$). In 1996, after one year of implementation, CON-95 ($M = 98$) scored similarly to NR and the State, but slightly higher than the Other design schools (note that the test was more difficult that year for the State in general). In 1997, after two years of implementation, CON-95 schools ($M = 93$) averaged lower than the comparison groups (ranging from $M = 98$ to 120). However, in 1998, the CON-95 schools ($M = 131$) demonstrated noticeable advantages (from 19 to 21 points) over all three comparison groups. Although this strong superiority was not maintained in 1999, the CON-95 schools ($M = 111$) still showed directional advantages relative to the NR schools ($M = 108$) and the State ($M = 105$).

Inferential results. Inferential comparisons, derived from an overall repeated-measures (program x year) ANOVA, compared CON means to NR means. Given that schools were the unit of analysis, the power to detect significance was exceedingly low. None of individual year comparisons was significant, despite the mean differences being extremely large in favor of the NR schools in 1995 (pre-reform; $ES = -0.66$) and in favor of CON-95 in 1998 ($ES = +0.73$).

We then compared CON-95 to NR for three post-reform years (1997-1999) averaged, as depicted in Figure 3. Despite being higher than the NR mean of 107, the CON-95 post-reform mean ($M = 111$) was not significantly different in the inferential statistical analyses. A related analysis examined the three-year average as a change score relative to the pre-reform (1995) mean. Again, there were no significant differences, although the change score mean for CON-95 schools averaged an educationally-important 27 *CPN* points higher than that for NR ($ES = +0.80$).

1997 Cohort

Descriptive results. As shown in Figure 2, the 2 CON-97 schools performed comparably to State schools, but lower than Other design schools and NR schools in 1995. In 1996, CON-97 schools were comparable to NR schools and the State, while Other 1996 design schools performed relatively low. In 1997, the CON-97 schools ($M = 96$) performed comparably to the three other comparison groups. In the two post-reform years, 1998 and 1999, the two CON-96 schools scored below NR and State schools.

Inferential analyses. No significant effects were found in comparing CON -97 schools to NR schools.

Discussion

Student performance was assessed for Co-NECT schools in Memphis, Tennessee relative to control schools in grades 4-5 on five subjects on the TerraNova, the state-mandated standardized achievement test. Value-added scores, derived from the Tennessee-Value Added Assessment (TVAAS) system, were used to assess student gain from one year to the next. In the present analyses, we examined results on all five subjects averaged for two cohorts of Co-NECT schools (R95 and R97), the first of which began implementation in the fall, 1995.

The five-year (1995-1999) TVAAS findings, although inconstant, are generally supportive of Co-NECT's effects on student achievement. The 4 Co-NECT schools that began implementing in 1995 averaged approximately 20 points lower than Control schools and the State in the spring prior to implementation. They also averaged about 13 points lower than Other design schools in that baseline year. However, for 1997-1999 averaged (the three post-reform years), Co-NECT schools were out-performing control schools by 4 points and State schools by 6 points, and lowered the deficit relative to Other design schools to only 8 points. Overall, these results do not show striking advantages for Co-NECT-95 schools, but as a group, they produced pre- to post-reform gain scores noticeably higher than the average for non-restructuring schools and the State, and slightly higher than the average for Other design schools. It is also noteworthy that the Co-NECT-95 cohort is highly diverse in student populations served. Two schools serve a mixture of low- to high-SES children, while two serve relatively disadvantaged populations. The achievement results did not appear to vary systematically across type of school.

Results for the Co-NECT-97 cohort did not show achievement advantages relative to the comparison schools. However, the 1998 and 1999 post-reform outcomes still represent relative early phases (Years 1 and 2) of implementation. Comparing Figure 2 (CON-97) to Figure 1 (CON-95) shows a consistent trend thus far for the two cohorts. That is, as previously described, CON-95 did not demonstrate noticeable advantages until its third year (1998) of implementation. The critical determinant of CON-97's success, therefore, will be whether positive effects are found in the 2000 analyses (its third year). Another consideration, of course, is that CON-97 represents only two schools, leaving much room for error variance due to implementation quality, teacher effectiveness, consistency and quality of school leadership and numerous other factors. For now, a fair judgment is that Co-NECT schools' achievement on the state-mandated standardized achievement test matches and often significantly exceeds achievement in other schools in Memphis and the State of Tennessee. In our companion study (Ross et al., in preparation), we will report effects of Co-NECT on other important outcomes, including school organization, teacher support, school climate, technology use, and classroom teaching methods.

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Figure 1. Memphis City Schools TVAAS Results for Co-NECT 1995 vs. Other R95 Designs vs. NR and State for 1995 – 1999.

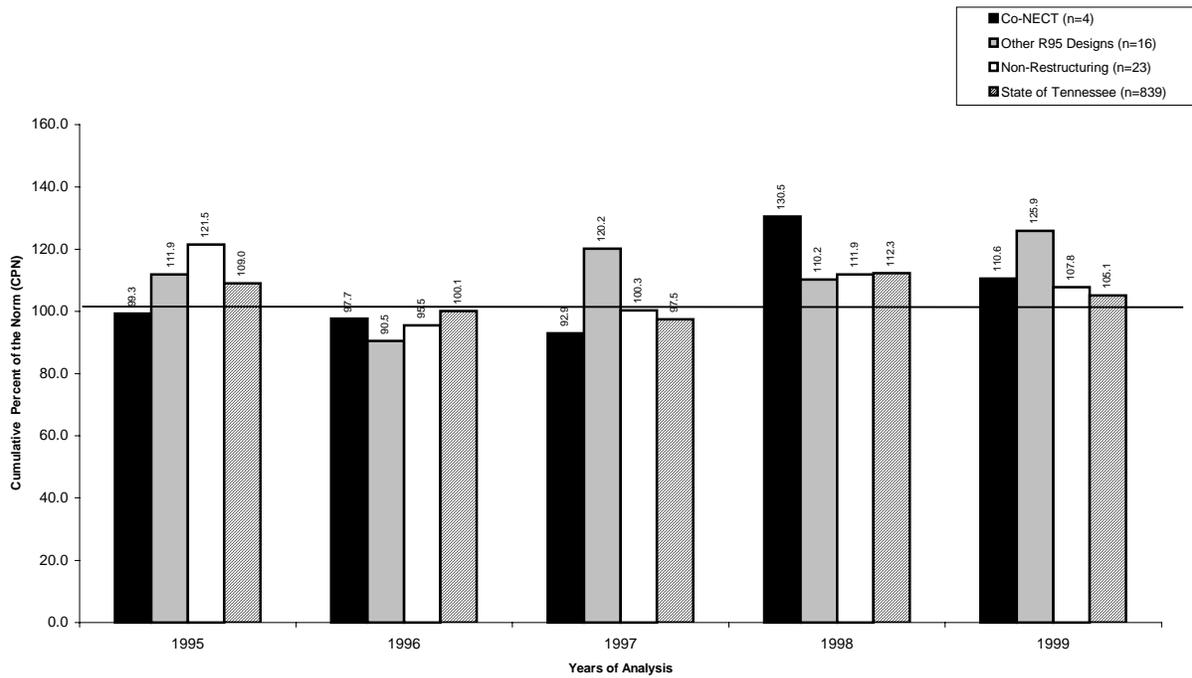


Figure 2. Memphis City Schools TVAAS Results for Co-NECT 1997 vs. Other R97 Designs vs. NR and State for 1995 – 1999.

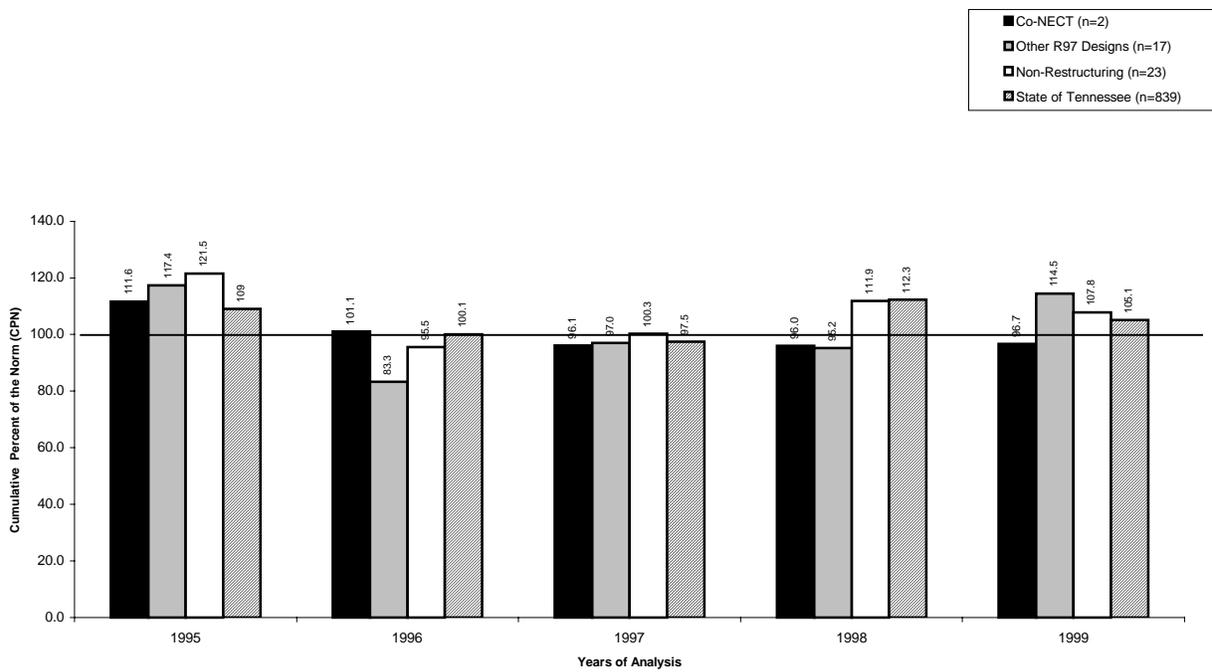


Figure 3. Memphis City Schools TVAAS Results for Co-NECT 1995 vs. Other R95 Designs vs. NR and State for 1995 and 1997 – 1999 Averaged.

