

1999-2004 STUDY

The following is excerpted from the evaluation report, *The Kennedy Center and Schools: Changing Education Through the Arts - Report on Implementation and Achievement: Fairfax County 1999-2004* by Dr. Ann Cale Kruger Georgia State University.¹

Introduction²

In 1999 the Kennedy Center launched an ambitious program to provide education and ongoing support for teachers to integrate the arts into elementary and middle school curricula. The Changing Education through the Arts (CETA) program includes school year courses and week-long intensive summer institutes, monthly in-school study group meetings, and support by in-school arts coaches. This multi-dimensional, long-term approach to professional development holds the promise of making real changes in teaching and learning. The team approach and the school-wide commitment to CETA also promise to create a community of learners with a common purpose in each school. Systematic, school-wide reform that integrates the arts into curriculum and pedagogy may result in improved student attitudes and achievement. There is theoretical support for this notion, especially for children who have not been successful in more traditional settings.

To measure the success of CETA in bringing about such changes, analyses of teacher implementation of arts integration and corresponding student achievement data from 13 (7 CETA and 6 Non-CETA) teacher participants in Fairfax County, Virginia, were conducted. This report describes the process and outcome of that project.

Method³

Fairfax County Schools supplied information on the students of seven CETA teachers for the year prior to their participation in CETA and for every subsequent year. They also supplied data on the students of six Non-CETA (control) teachers with comparable experience in comparable schools. Data collected for each year included the grade of instruction, student demographic data (including gender, ethnicity, SES, language status, and special education status of each teacher's students), student report card grades, student Virginia Standard of Learning (SOL) scores, and attendance information. Data records were organized with the teacher as the unit of analysis. All student data were de-identified. Thus, the progress of individual students over time was not available for study. Instead, the progress of the teacher's quality of instruction as reflected in their different students' performance over time was investigated. That is, individual student achievement data were nested inside teacher records and teacher records over time were studied.

CETA program staff and I constructed and administered a questionnaire for the 13 teachers measuring the degree to which they used or integrated the arts during their Pre-CETA year and over the years of participation (or the same calendar year for controls).

Teacher Sample⁴

Thirteen female teachers in Fairfax County Schools are represented in the dataset. The

teachers are organized in three cohorts. The first cohort consists of teachers who began the CETA program in the 2000-2001 school year and their controls, the second cohort consists of teachers who began CETA in the 2001-2002 school year and their controls, and the third cohort consists of two teachers who began CETA in the 2002-2003 school year and one control. An Analysis of Variance (ANOVA) showed that teachers in the first cohort had significantly more years of teaching experience at the end of the 2002-2003 year than teachers in the second cohort and teachers in the third cohort. Pair-wise comparisons are significant between the first and second cohort and the first and third cohort. A *t*-test indicated that CETA and Control teachers had comparable experience.

Student Sample⁵

Data representing 725 students are included in this dataset. Of these, 357 (49%) are female. The students are 38.6% European American, 27.7% Latino/a, 18.9% Asian American, 10.9% African American, 3.7% Multiracial, and <1% Native American. Of these 725 students, 10% receive special education services, and 46.8% are not native speakers of English. Over 200 students are eligible for reduced cost (11% of the total population) or free lunch (27% of the total population), and this is considered a measure of socio-economic status (SES).

Results

Survey Questions⁶

The first five questions of the teacher survey addressed aspects of adopting an arts integration pedagogy. The questions asked teachers to rate the frequency with which they (1) *used* the arts (connected an art form to a subject in the curriculum), (2) *integrated* the arts (had objectives in an art form and in another curriculum subject in the same lesson), (3) used outside resources (e.g., teaching artists) to enhance lessons, (4) cooperatively planned with colleagues, or (5) cooperatively taught with colleagues.

The questions were posed for each year under study (school years 1999-2000 through 2003-2004). Options for responses were Never (0 point score), 1-2 times a year (1 point), 1-2 times a term (2 points), 1-2 times a month (3 points), and 1-2 times per week (4 points). Teachers' responses to each question were recorded for each year. A summary score of their average response to the five questions for each year was also constructed to yield an overall implementation score for each year.

Summary of Teacher Self Assessment⁷

Compared to Controls, CETA teachers reported a marginally significant increase in their overall implementation over time and a significant increase in their use of 'connected an art form to another subject' over time. The CETA teachers' average rate of overall implementation at Year 2 was between 1-2 times a term and 1-2 times a month. At Year 2 CETA teachers report using the strategies of connect and resources more often than Controls. Control teachers report using co-teaching more often. CETA teachers also report a marginally significant increase in arts knowledge over time compared to Controls. All teachers report consistently using or integrating between 1 and 2 art forms.

Summary of Student Data⁸

Among students of CETA teachers, 3rd grade SOL (Standards of Learning) subtest scores in English and history improved significantly over time compared to the scores of students of Control teachers. Although the absolute sub-scores in science and math were greater for students of CETA teachers than for students of Control teachers, the rate of improvement over time was the same for the two groups. The CETA and Control students' absolute level of performance may be due to random variation between the groups, but the rate of *improvement* over time (as seen in English and history) may plausibly be interpreted as related to the training and experience of the CETA teachers.

Fifth grade SOL subtest scores were stable over the two years of their measurement for the CETA and Control teachers. The small sample size in this grade level may prevent the detection of any group or time main effects or an interaction effect.

Students of CETA teachers showed a greater rate of improvement in report card grades for academic achievement, academic effort, health/physical education achievement, and health/physical education effort compared to students of Control teachers. Interestingly, students of Control teachers showed more improvement over time in arts achievement and arts effort compared to CETA students. These report card grades are more difficult to interpret, since the persons assigning the grades (teachers) are, for the most part, also the persons whose effect is being measured. Thus, it may be that there is something about being a CETA teacher that leads one to award higher grades in academics but not in the arts. Nevertheless, taken together, the SOL and report card data suggest that there is a steady improvement over time in CETA students' academic work, especially in English and history, compared to control students.

The absentee rate is consistently lower among CETA students, although the levels are stable in the two groups over time. Although efforts were made to draw Control teachers from schools that are demographically similar to the CETA schools, it appears that the Control schools had lower overall standardized achievement scores, lower report card grades, and greater absenteeism than CETA schools at the outset. The greater improvement over time in academic achievement may be interpreted as due to the effect of the CETA program in particular. However, other contributing processes, such as a generally positive environment that leads to CETA participation and academic improvement independently, cannot be ruled out by these data.

Conclusions⁹

This project investigated the relationships among CETA training, teachers' instructional practices, and their students' academic achievement. The seven CETA teachers in Fairfax County who supplied information about their teaching for this project reported that their overall implementation of relevant teaching techniques, such as connecting or integrating the arts, using outside resources, and collaborating in planning and teaching, increased over a three year span compared to the six Control teachers.

CETA teachers' students showed, compared to Control teachers' students, significantly improving report card grades for academic achievement, academic effort, health/physical education achievement, and health/physical education effort over a four-year span. Control students showed more improvement over time in arts achievement and arts effort compared to CETA students. The CETA and Control students' 5th grade SOL scores were similar and stable, although this finding is less than reliable since it is based on few students and only two years of information. Notably, compared to Controls, CETA students showed significantly improving SOL scores for the 3rd grade subtests in English and history over a four-year span.

Standardized test scores are notoriously difficult to affect, as the countless unsuccessful public school programs attest. It is reasonable to believe that any intervention tackling such a complex task would require multiple years of effort. It is remarkable that an arts integration program may have contributed to the improvement, since the role of the arts in academic achievement has been difficult to demonstrate empirically. Strict statistical standards were applied throughout this report, and thus the internal validity of the report is unusually high for this type of evaluation. However, the limitations of the dataset described earlier (especially small sample size and incomplete datasets) necessarily constrain the interpretation that can be made of the findings.

Furthermore, the design of this evaluation is quasi-experimental. Teachers were not randomly assigned to participate in CETA training, nor were students randomly assigned to attend schools that support CETA as a professional development opportunity for teachers. This means that absolute causality cannot be inferred. Variables other than the CETA program that may affect student performance may differ between the groups. For example, the Control schools, although demographically similar to the CETA schools, had from the outset higher absentee rates, lower test scores, and lower report card grades. Thus, it is imperative that the findings here that are interpreted are only those that compare rates of change, and not absolute levels of performance. Even with a focus on the rate of change, an argument can be made that schools that promote CETA training for their teachers may also provide other positive influences in school, and these underlying processes, rather than CETA itself, may be interpreted to explain the rate of improvement. This alternative explanation applies to teacher data as well. Teachers' self-report about using arts integration techniques may not be directly comparable between CETA and Control teachers, since their varying training and experience may lead them to view the definition and quality of those activities differently. Given those caveats, these data show that teacher implementation, student academic report card grades, and third grade English and history standardized test scores show significantly greater rates of improvement over time in CETA schools than in Control schools. These findings lend support to the interpretation that CETA teachers are more successful over time in implementing arts integration techniques and thus in affecting increasing student academic achievement.

This report describes a challenging undertaking. The student data that are collected by County schools are difficult for outside evaluators to obtain. Schools have an obligation to preserve the privacy of students, and the retrieval of de-identified data by school personnel for outside projects is labor intensive. Fairfax County Schools and the CETA staff are to be

commended for their excellent cooperation and initiative in getting this data collection project underway this year.

It is strongly recommended that the CETA staff continue to cooperate with Fairfax County to update this dataset annually as more data on these teachers become available and as new teachers join the program. It is also recommended that CETA consider adding a second data source for measuring teacher implementation, such as outside observation. It is also recommended that CETA begin to collect data on academic achievement that is not measured by a standardized test, but can be objectively measured, such as depth of understanding of an issue or critical thinking on a topic of curricular focus. These additions to the data collection process currently underway will add statistical power to future evaluations and will help to clarify some of the patterns of relationships observed in the data here.

¹ *The Kennedy Center and Schools: Changing Education Through the Arts - Report on Implementation and Achievement: Fairfax County 1999-2004* by Dr. Ann Cale Kruger, Department of Educational Psychology and Special Education, College of Education, Georgia State University, Atlanta, GA. January 2005.

² Ibid., 3.

³ Ibid., 3-6.

⁴ Ibid., 4.

⁵ Ibid., 6.

⁶ Ibid.

⁷ Ibid., 16.

⁸ Ibid., 30-31.

⁹ Ibid., 42-43.