Reference: Boyd-Zaharias, J. (1999). Project STAR: The story of the Tennessee class-size study. American Educator, 23 (2), pp. 30-36.

STRUCTURED ABSTRACT

Background: Before Project STAR, the randomized-controlled field trial in Tennessee on class size in kindergarten through third grade that took place between 1985 and 1989, educational policymakers at the local, state and national levels could claim that was no conclusive evidence to establish that small class sizes led to gains in student achievement.

Purpose: To explain the origins of the Tennessee study on class size, describe the design of the study in detail, and report its main findings.

Setting: Public elementary schools in urban, suburban, rural and inner-city school districts throughout the state of Tennessee.

Population: The original STAR sample included 6,328 kindergarten students. By 1989, over 11,000 students enrolled in kindergarten through third grade had participated in the study.

Intervention: Dr. Helen Pate-Bain, a Tennessee educator and researcher, led a campaign to launch a large-scale experiment to study the effects of small class size in the early elementary grades. Using the results of several small pilot studies (including one she conducted herself) on the benefits of small class size, Dr. Pate-Bain spent an entire year personally lobbying the members of the Tennessee state legislature in the early 1980s. Tennessee legislators at the time were in the midst of discussing class size and other school reform issues as part of the Better Schools Program of Lamar Alexander, then the governor of Tennessee. Convinced that a well-designed study on class size was needed to inform legislators on how to spend education dollars, the Tennessee legislature voted to appropriate $12 million for a definitive, four-year randomized-controlled study on the effect of small class size in kindergarten through third grade.

This study was named Project STAR, an acronym for Student/Teacher Achievement Ratio. Project STAR was designed by a group of researchers (including Dr. Pate-Bain) and members of the Tennessee Department of Education. Jeremy Finn, an outside consultant, was hired to serve as the study's primary statistician. As a professor at the State University of New York – Buffalo, he had no prior ties with the Tennessee State Department of Education or with the principal investigators of Project STAR.

In Project STAR, students and teachers were to be randomly assigned to one of three experimental conditions: small class size kindergarten (about 15 pupils), regular class size kindergarten (about 22 students), or regular class size kindergarten students (about 22 students) with a teacher's aide. Each participating school needed at least three classrooms in the appropriate grade (i.e., kindergarten in 1985, first grade in 1986) participating in Project STAR to represent each of the three experimental conditions, allowing within-school comparisons. All public schools in Tennessee with classes in kindergarten through third grade were invited to participate in Project STAR; of those expressing interest, 79 schools in 42 districts met the initial study requirements.

Project STAR began in 1985 and concluded at the end of the school year in 1989. New teachers were assigned to each classroom each year in both small and regular class sizes. No children received fewer services than normal because of Project STAR. Students assigned to small-size classes in kindergarten subsequently remained in small classes during first, second, and third grade over the four-year course of the study; students assigned to regular-size classes in kindergarten likewise remained in regular-size classes in first, second, and third grades. Students who did not attend kindergarten were randomly assigned to small-size or regular-size classes in first grade and then remained with either their small- or regular-size classes through the end of third grade.

Research Design: Case Study; Randomized-Controlled Field Trial; Quantitative Comparison (long-term follow-up of participants in original field trial).

Data Collection and Analysis: Students in Project STAR took two different standardized tests in the spring of each school year: the nationally-normed Stanford Achievement Test and the criterion-referenced Basic Skills First test.

For follow-up studies, standardized test data for grades 5 through 12 for former Project STAR participants were provided by the Tennessee education department.

Findings: By the end of third grade, students in Project STAR who had been randomly assigned to small classes outperformed their counterparts in regular-size classes by an average of 4.6 months of schooling in reading, 4.7 months of schooling in word study skills, and 2.8 months of schooling in math. One year after the end of Project STAR, a follow-up study showed that fourth grade students who had formerly been in the small classes showed more initiative, participated more willingly, showed greater effort, and were more engaged in class and school activities than their counterparts who had been assigned to regular size classes during the Project STAR study.

Long-term follow-up studies found that by the end of eighth grade students who had attended small classes for all four years of Project STAR outperformed their counterparts who had attended regular-size classes by an average of 14 months of schooling in reading, 13 months of schooling in math, and 13 months of schooling in science. Students who had been in small classes were 2.5 percent less likely to have been retained a grade level by the end of eighth grade.

Preliminary findings from an ongoing follow-up study of Project STAR suggest that students who had been assigned to small classes were more likely as high school students to be enrolled in advanced classes and honors classes, to rank in the top ten percent of their graduating class, and to receive honors diplomas than their counterparts who had been in regular-size classes in the early elementary grades. Students who had been in the small classes were also more likely to graduate on schedule: 72% of students who had been in small classes graduated on schedule compared to 66% of students who had been in the regular-size classes. Likewise, students who had been in the small classes were less likely to drop out of high school, with about a 5

percentage point difference in the dropout rate separating students who had been in small class sizes from those who had been in regular-size classes.

Conclusions: Evidence from Project STAR conclusively establishes that all students academically benefit from small class sizes in kindergarten through third grade. Project STAR demonstrates that class size reduction in the early elementary grades is a research-validated school reform measure to improve student achievement. As a landmark large-scale randomized-controlled field trial, Project STAR represents a major contribution to class size research in particular and to education research in general.