

**Reference:** Boyd-Zaharias, Jayne & Pate-Bain, Helen. (2000). Early and new findings from Tennessee's Project STAR. In Wang, M.C. & Finn, J.D. (Eds.), *How small classes help teachers do their best*, Philadelphia, PA: Temple University Center for Research in Human Development in Education, pp. 65-97.

## STRUCTURED ABSTRACT

**Background:** School reform proposals often emphasize the importance of small class sizes and the recruitment and retention of high-quality teachers. The Tennessee study of class size in the early school grades was a randomized-controlled experiment where students were randomly assigned to small or regular class sizes in kindergarten in 1985 and then kept in those small or regular class sizes for four years through third grade. The Tennessee study, also known as Project STAR, provides a comprehensive examination of the effects of small class size in the early grades. Its findings also offer insight into the teaching practices of high-quality teachers in the early grades in small class sizes and regular class sizes.

**Purpose:** To study high-quality teachers in the early grades who had been randomly assigned to small class sizes (13-17 students) or regular class sizes (22-26 students).

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

**Participants:** The initial study in 1987 involved 50 1<sup>st</sup> grade teachers. Follow-up studies in subsequent years involved another 130 2<sup>nd</sup> and 3<sup>rd</sup> grade teachers.

**Research Design:** Mixed methods, including classroom observations, teacher interviews, and quantitative comparison.

**Data Collection and Analysis:** Students participating in Project STAR took the standardized Stanford Achievement Tests at the end of the school year in kindergarten (SESAT II) in 1986 and in 1<sup>st</sup> grade (Stanford Primary I) in 1987. Researchers analyzed student gain scores in reading and mathematics by classroom average to identify the top 15% of 1<sup>st</sup> grade teachers in four different school types: rural, urban, suburban, and inner-city.

Paired observers conducted structured classroom observations and teacher interviews of these high-quality 1<sup>st</sup> grade teachers.

In a follow-up study, researchers again used student gain scores on the reading and mathematics section of standardized tests to identify the top 10% of 2<sup>nd</sup> and 3<sup>rd</sup> grade teachers. These 65 high-quality 2<sup>nd</sup> and 3<sup>rd</sup> grade teachers were then compared with another group of 65 "low-quality" 2<sup>nd</sup> and 3<sup>rd</sup> grade teachers, where the average classroom student gain scores had been in the bottom 50%.

**Findings:** High-quality teachers in 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> grade were identified across the different kinds of public elementary schools, and were not disproportionately clustered in any of the four school types (urban, suburban, rural, and inner-city). Although Project STAR randomly assigned twice as many 1<sup>st</sup> grade teachers to regular class sizes (22-26 students) than to small class sizes (13-17 students), more high-quality 1<sup>st</sup> grade teachers (n=23) were identified in small class sizes than in regular class sizes (n=20); another 7 high-quality 1<sup>st</sup> grade teachers were found in classes of 18-21 students (due to student mobility, some class sizes were irregular). Similarly, while about 35% of all 2<sup>nd</sup> and 3<sup>rd</sup> grade teachers were randomly assigned to small classes in Project STAR, 68% of the high-quality 2<sup>nd</sup> grade teachers and 78% of the high-quality 3<sup>rd</sup> grade teachers came from small class sizes.

Of the 50 high-quality 1<sup>st</sup> grade teachers, all were female; 82% were white and 18% were African-American; and 36% had a Masters degree. The demographic characteristics of the high-quality 1<sup>st</sup> grade teachers were identical or very similar to the other 288 1<sup>st</sup> grade teachers participating in Project STAR.

The high-quality 1<sup>st</sup> grade teachers received high ratings across all categories in the classroom observations and teacher interviews, including “excellent” ratings of 80% or higher and “good or excellent” combined ratings of 94% or higher for all of the following criteria: use of preplanned curriculum; high expectations for student learning; careful orientation of students to lessons; clear and focused instruction; close monitoring of student progress; re-teaching material to students when appropriate; use of class time for learning; employing smooth and efficient classroom routines; using instructional groups within the classroom; having explicit standards for classroom behavior; interacting positively with students; and use of incentives and rewards to promote excellence.

The comparison of high-quality and low-quality 2<sup>nd</sup> and 3<sup>rd</sup> grade teachers revealed highly significant differences ( $p < .001$ ) in using clear and focused instruction (81% of high-quality teachers received a rating of “excellent” vs. 41% of low-quality teachers); close monitoring of student progress (81% vs. 49%); use of smooth and efficient classroom routines (89% vs. 55%); having explicit standards for student behavior (86% vs. 56%); and interacting positively with students (88% vs. 44%).

**Conclusions:** High-quality and low-quality teachers in the early grades appear similar in terms of demographic and professional characteristics, but their respective classrooms look very different upon direct observation. Small class size facilitates the creation of a teaching and learning environment where teachers can consistently engage in effective teaching practices and help students achieve at high levels.