

Reference: Gerber, S. B., Finn, J. D., Achilles, C. M., & Boyd-Zaharias, J. (2001). Teacher aides and students' academic achievement. Educational Evaluation and Policy Analysis, 23 (2), pp. 123-143.

STRUCTURED ABSTRACT

Background: Hundreds of thousands of paraprofessionals work every school day in public elementary schools throughout the United States, but to date there has been little research performed on their effectiveness. Project STAR, the Tennessee randomized-controlled field trial of class size in the early school grades, also systematically examined the effect of teacher aides in the classroom. As one of the most important educational investigations ever conducted in the United States, Project STAR provides comprehensive findings regarding the effects of teacher aides on student achievement in the early grades.

Purpose: To examine the effect of a full-time teacher aide in the classroom on student achievement in the early grades.

Setting: Approximately 80 public elementary schools in inner-city, urban, suburban, and rural districts throughout the state of Tennessee.

Population: Project STAR began with 6,325 students who started kindergarten in 1985. By the time Project STAR ended four years later in 1989, 11,600 students had participated. Approximately one-third of the participating students were African-American. About 100 teacher aides participated in Project STAR during each of the four years of the study. Of these teacher aides, 99% were female; 90% had achieved a high school diploma; 82% were white; and 18% were black.

Intervention: In Project STAR, students and teachers were randomly assigned to one of three experimental conditions: small class size kindergarten (13 to 17 pupils), regular class size kindergarten (22 to 25 students), or regular class size kindergarten (22 to 25 students) with a full-time teacher aide. Each participating school had 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. Participating schools received funds for additional teachers and teacher aides, but had to supply the extra classrooms themselves and did not get additional financial support. Students in the small class size kindergarten subsequently had small classes (13 to 17 pupils) in first, second, and third grade over the four-year course of the study. Students in the small classes remained in those small classes all day and every day throughout the school year; there were no pull-out programs. Students in the regular class size kindergartens subsequently remained in regular size classes (22 to 26 students) in first, second, and third grades. In the second year of the study, all students in the regular size classes were re-randomized to regular size classes with or without a teacher's aide and then remained in those classroom conditions for the next three years. New teachers were assigned to each class each year in both small and regular class sizes. New special textbooks or curricula were not allowed to be introduced in the Project STAR classrooms during the study. Project STAR began in 1985 and concluded at the end of the school year in 1989.

Teacher aides were hired using the usual procedures in each district. During the first year of Project STAR, the average previous experience of a teacher aide was 2.7 years; about one-quarter had no prior experience working as a teacher's assistant; and fewer than 12% had more than three years of experience.

Research Design: Randomized-controlled field trial.

Data Collection and Analysis: Project STAR data used in this analysis represent approximately 5,400 participating students per year in kindergarten through third grade. This sample was somewhat smaller than the full Project STAR cohort because the following students were excluded: students with missing demographic information; students with missing test scores; students who had been in both a small class and a regular size class with a teacher's aide during the four-year course of the trial (the exclusion begins with the year the student changed class conditions); and students who moved from a small class or a regular size class with a teacher's aide class into a regular class (the exclusion begins with the year the student changed class conditions).

Achievement test data for these participants in grades K-3 came from both a nationally-normed standardized test (i.e., the Stanford Achievement Test) administered in the spring of each school year and a state-specific curriculum-based test (i.e., the Tennessee Basic Skills First test). Test data were analyzed using hierarchical linear modeling, a statistical procedure that takes into account that individual students are "nested" (or contained) within classes, and that classes are themselves "nested" within schools.

Teacher aides completed time logs and questionnaires as part of their participation in Project STAR. More than 91% of teacher aides in grades 1, 2, and 3 completed time logs to record what duties they were performing in different 15-minute intervals throughout the day (e.g., routine paperwork, planning, preparation, routine student activity, individualized instruction, small group teaching, or whole-class instruction). Teacher aides in grades 2 and 3 also completed a questionnaire to report how much time they spent on each of 12 different tasks ranging from bus duty to tutoring individual students to grading tests.

Findings: There were no significant differences in student achievement test scores between students in regular classes with a teacher aide and students in regular classes for all four grades (kindergarten through third grade).

Students in small classes consistently outperformed students in regular classes with a teacher aide. The median effect size of being in a small class was 0.18 when compared with being in a regular size class with a teacher aide.

Teacher aides at all grade levels reported in their time logs and questionnaires that they worked most often on administrative tasks, which on average took more than 40% of their time. The next most common activities were instructional tasks (about 25-30% of the work day), followed by noninstructional interactions with students (the remaining 20-25% of the work day). Most of the instructional tasks involved tutoring individual students. According to the questionnaires,

teacher aides reported that on average less than 2% of the work day was spent in whole-class instruction.

Analysis of teacher aide data and student achievement scores showed no relationship between student achievement and the educational backgrounds of teacher aides or between student achievement and the way teacher aides were used in the classroom.

Conclusions: These findings from Project STAR conclusively demonstrate that adding a full-time teacher aide to a regular size classroom has no significant effect on student achievement scores in the early grades. Furthermore, students in small classes consistently outperformed students in regular size classes with a full-time teacher aide. Project STAR provides definitive evidence that small class size in the early grades is an effective practice for improving student achievement but placing a full-time teacher aide in a regular size classroom is not. This study indicates that in general teacher aides are not effective as teachers.