PROJECT STAR

FINAL EXECUTIVE SUMMARY REPORT

KINDERGARTEN THROUGH THIRD GRADE

(1985-1989)

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PROJECT STAR Final Executive Summary

Kindergarten Through Third Grade Results (1985-1989)

This report presents the results of Tennessee's four-year longitudinal class-size project: Student Teacher Achievement Ratio (STAR). This longitudinal study analyzed student achievement and development in three class types: small classes (13-17 students per teacher), regular classes (22-25 students per teacher)

and regular classes (22-25) with a full-time teacher aide. Project STAR followed students from kindergarten (K) through grade 3, starting in 1985-86 with kindergarten and ending in 1988-89 with third grade. The project included 17 inner-city, 16 suburban, 8 urban, and 38 rural schools in order to assess the effects of class size in different school locations.

A major strength of the Project STAR study was the "within-school" design which required each school to have at least 57 students at the appropriate grade level so that each school could contain at least one of each class type (small, regular, and regular/aide). This design reduced major sources of possible variation in student achievement attributable to school effects. In each year of the study there were more than 6,000 students. The number varied for several reasons, including that kindergarten is not required in Tennessee.

The main focus of the study was on student achievement as measured by the appropriate forms of the Stanford Achievement Test (K-3) and STAR's (grades 1-2) Basic Skills Criterion Tests and Tennessee's (grade 3) Basic Skills Criterion Tests. Student development was measured by the Self-Concept and Motivation Inventory (SCAMIN).

STAR's kindergarten results showed a definite advantage for students in small classes in achievement and no significant advantage for the use of a teacher aide. At then end of first grade, Project STAR students in small classes were outperforming students in regular and in regular/aide classes by substantial (statistically and educationally significant) margins on standardized tests and also on the Basic Skills Criterion test of reading and math. This pattern continued in grades two and three as shown in Figures 1 and 2.

Figures 3 and 4 show third grade total reading and total math scaled scores and percentile ranks by location and class type. The greatest advantage was for inner-city small classes. The highest scores in a all class types were made in rural schools. The least advantage was for regular/aide classes in urban and suburban schools. Longitudinal results for the small (about 33 percent) subsample of students in the same class size for two years (K-1) and three years (1-3) showed that the large and statistically significant gains favoring the small classes made in the first year (i.e., K in the K-1 comparison and grade 1 in the 1-3 comparison were maintained.

Students in small classes in kindergarten had significantly higher self-concept scores. In grades 1 through 3 being in small class did not have an impact on student self-concept or motivation. However, the SCAMIN results revealed a statistically significant finding based upon school location. Inner-city (predominantly minority) students had higher self-concept scores in grades 1 and 2, and in grade 3 they also had higher motivation scores.

Based on four years of interviews, patterns emerged in kindergarten and continued through the third grade. The following advantages were apparent for instruction in small and regular/aide classes:

1. basic instruction was completed more quickly, providing more time for covering additional basic material,

2. use of supplemental text and enrichment activities,

3. more in-depth instruction regarding the basic content,

4. more frequent opportunities for children to engage in first-hand learning activities using concrete materials,

5. increased use of learning centers, and

6. increased use of highly desirable primary grade practices.

Improved individualization of instruction also emerged as a dominant theme in small and regular/aide class teachers' perceptions. Teachers reported: 1) increased monitoring of student behavior and learning, 2) opportunities for more immediate and more individualized reteaching or enrichment, 3) more frequent interactions with each child, 4) a better match between each child's ability and the instructional opportunities provided, 5) a more detailed knowledge of each child's needs as a learner, and 6) the necessary time to meet individual learner's needs using a variety of instructional approaches. Significant reduction of class size or the addition of a full-time teacher aide also made positive changes in the physical, social, and emotional environments in primary grade classrooms. Classrooms were more pleasant work environments for both teachers and students. Teachers and students were under less stress, and learning occurred in a more relaxed atmosphere. Students were less likely to get lost in the crowd.

Conclusions

The results of STAR are definitive enough to elicit the following statement by Dr. Jeremy Finn:

> This research leaves no doubt that small classes have an advantage over larger classes in reading and mathematics in the early primary grades. This experiment yields an unambiguous answer to the questions of the existence of a class-size effect, as well as estimates of the magnitude of the effect for early primary grades.

These are strong words for research in education and are possibly due to the design and power of Tennessee's Project STAR which has paid considerable attention to maintaining the required research standards and controls.

PROJECT STAR FACT SHEET

TENNESSEE'S K-3 CLASS SIZE STUDY

Robert Slavin, John Hopkins University, an AERA reactor, praised Project STAR's design and integrity and called it a "watershed event" in research.

Jeremy Finn, State University of New York, an external consultant to the project, reported, "This research leaves no doubt that small classes have an advantage over larger classes in reading and mathematics in the early primary grades."

THE SMALL CLASSES MADE THE HIGHEST SCORES ON THE STANFORD ACHIEVMENT TEST (SAT) AND BASIC SKILLS FIRST (BSF) TEST IN ALL FOUR YEARS (K-3) AND IN ALL

LOCATIONS (RURAL, SUBUBAN, URBAN, INNER-CITY).

The GREATEST GAINS on the SAT were made in Inner-CITY SMALL classes.

The HIGHEST SCORES on the SAT and BSF were made in Rural SMALL classes.

The Classes that scored in the top 10% on the SAT Total Reading are identified as follows:

18 of the top 33 classes were small in Kindergarten.
22 of the top 34 classes were small in First Grade.
23 of the top 34 classes were small in Second Grade.
25 of the top 32 classes were small in Third Grade.

The only consistent positive Regular/Aide class effect occurred in First Grade.

Inner-City (predominately minority) students in small classes always outscored inner-city students in regular and regular/aide classes. This suggests that small classes are very beneficial to minority students.

In every grade, every location, and every class type Non-Free Lunch students outperformed Free Lunch students.

Non-Free Lunch Minorities in suburban small classes performed as well as Non-Free Lunch Whites.

Teachers reported that they prefer small classes in order to identify student needs and to provide more individual attention, as well as to cover more material effectively.

The effective teacher research revealed certain teaching practices and characteristics that produce more effective learning:

- ☐ Creative Writing, Hands-On Experiences, Learning Centers, Use of Manipulatives
- ☐ Good Listener, Immediate Feedback, Monitoring, Preplanned Instruction, Well Organized
- ☐ Assertive Discipline, High Expectations, Peer Tutoring, Reteaching
- ☐ Effective Communication with Parents, Love of Children
- ☐ Enthusiasm, Flexibility, Patience, Sense of Humor

Communication with parents will be more effective when teachers are trained in the following skills:

- ☐ Ability to establish effective communication with the home.
- ☐ Ability to involve the family in the education of their children.
- ☐ Ability to teach parents how to teach their children.
- ☐ Ability to make home visits.

IN ORDER FOR CLASS SIZE REDUCTION TO BE MOST COST EFFECTIVE, TEACHERS MUST POSSESS THESE CHARACTERISTICS AND BE TRAINED IN THESE PRACTICES.

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