

Date: August 26, 2015

For ACTION _____

For Board Brief X

FROM: John L. Brown, Executive Director, Curriculum Design and Instructional Services

THROUGH: Alvin Crawley, Ed.D., Superintendent of Schools
Terri H. Mozingo, Ed.D., Chief Academic Officer

TO: The Honorable Karen Graf, Chair, and Members of the Alexandria City School Board

TOPIC: Research on Class Size and Its Effects upon Student Achievement

INTRODUCTION:

During previous School Board discussions of policies related to elementary and secondary class size, Chairperson Karen Graf requested that a board brief be prepared on current research related to the impact of class size upon student achievement, engagement, and motivation. The following is a synthesis of current research on these subjects.

I. The Limitations of Research on Class Size and Its Impact upon Student Achievement:

- The body of educational research conducted on the effects of class size is limited.
- As stated by Sara Mosle in the *New York Times* editorial “Does Class Size Count?” (May 4, 2013), the data on class size “... is not conclusive, if only because, in the last quarter-century, there’s been just one proper randomized, controlled study in the United States to measure, at sufficient scale, the effect of smaller and larger classes on student achievement. Known as Project STAR, it found that smaller classes do produce lasting gains, especially for economically disadvantaged and minority-group students.”
- According to Hanover Research, “The idea of reducing class size is popular. Most associate smaller classes with more personalized attention, which leads to better student learning.
- However, Handover also emphasizes that some research studies on this subject finds positive outcomes, and some finds statistically insignificant differences in student performance between large and small classes.”
- Hanover concludes: “Unfortunately, the body of research undertaken on the topic has been highly criticized for having flawed methodologies, making it unreliable. The most common failing of such research is the disregard of other student variables such as income level and student achievement.”

II. Research-Based Evidence from Tennessee’s Student Teacher Achievement Ratio (STAR)

Experiment:

- This study involved a randomized experiment in which over 115,000 students and 13,000 teachers in 79 Tennessee elementary schools were randomly assigned to small or regular-sized classes from 1985-89.
- The students were in the experiment from kindergarten through third grades.
- Because the STAR experiment employed random assignment, any differences in outcomes can be attributed with great statistical confidence to being assigned to a smaller class. In other words, students were not more or less likely to be assigned to small classes based on achievement levels, socio-economic background, or more difficult-to-measure characteristics such as parental involvement (cited in the National Policy Center meta-analysis, “Does Class Size Matter,” February 2014, p. 3).
- According to the STAR study, students’ achievement on math and reading standardized tests improved by about 0.15 to 0.20 standard deviations (or 5 percentile rank points) from being assigned to a small class of 13-17 students instead of a regular-sized class of 22-25 students.
- When results were disaggregated by race, Black students showed greater gains from being assigned to a small class, suggesting that reducing class size might be an effective strategy to reduce the Black-White achievement gap (National Policy Center, p. 3).

- Small-class benefits in STAR were also larger for students from low socio-economic-status families, as measured by the free- or reduced-priced lunch program.
- Small classes were also found to have positive effects not only on test scores during the duration of the class-size reduction experiment, but also on life outcomes in the years after the experiment ended.

III. Follow-Up Research on the Instructional Implications of the STAR Study:

- A follow-up study of the most effective teachers in STAR found that instructors used a variety of strategies to promote learning and that small classes allowed them to be more effective in employing these strategies.
- Exemplary teachers in this follow-up study:
 1. Closely monitored the progress of student learning in their classes
 2. Were able to re-teach using alternative strategies when children did not learn a concept
 3. Had excellent organizational skills
 4. Maintained superior personal interactions with students

IV. Additional Quasi-Experimental Evidence Consistent with STAR: Although STAR is the only randomized experimental study on the effects of class size, other quasi-experimental studies (deemed by the National Education Policy Center as “high quality”) that isolate the effect of small class size in elementary school on student outcomes show similar outcomes:

- Wisconsin’s Targeted Class-Size Reduction Program: Test scores in first-grade reading, math, and language arts were higher in classrooms with a 15 to 1 ratio than those in selected comparison schools with average pupil-teacher ratios of 22.4 to 24.5. Attending small classes improved student achievement by approximately 0.2 standard deviations.
- Angrist and Lavy’s Strict Maximum-Class-Size Rule Study in Israel: The authors found strong improvements overall in both math and reading scores when class sizes approximated the 15-1 ratio identified by the STAR study.

V. General Benefits of Smaller Class Size (National Education Policy Center):

A majority of the studies considered as effective in analyzing the effects of class size identify certain universal benefits of smaller class sizes, including:

- A higher level of student engagement results from the immediacy of student-teacher and student-student interaction and feedback
- Increased time on task (with distractions and behavioral issues minimized compared to larger class-size settings)
- Expanded opportunities for the instructor to differentiate content, process, and product based upon students’ varying readiness levels, interests, and learner profiles

IMPACT/RECOMMENDATIONS:

Several implications for Board policy and regulations related to class size can be inferred from these studies:

- Smaller class sizes (especially those replicating the 15-1 ratio supported by the STAR study) are a potential intervention for addressing the achievement needs of gap groups such as students with disabilities and students with limited English proficiency.
- The experimental and quasi-experimental studies cited reinforce that maximum benefits derived from smaller class sizes are most evident when the classroom instructor is versed in a range of research-based best practices in teaching, assessment, and classroom management.
- The studies were universal in asserting that the payoff from class-size reduction is larger for low-income and minority children while increases in class size may be harmful to these populations.
- According to the Great Lakes Center for Education Research and Practice: “Policymakers should carefully weigh the efficacy of class-size reduction policy against other potential uses of funds. While lower class size has a demonstrable cost, it may prove the more cost-effective policy overall.”

ATTACHMENT(S):

1_Class Size and Student Performance Literature Review (Hanover Research)