

## RESEARCH REPORT

August 2000

**CLASS SIZE MAKES A DIFFERENCE**

*There is no longer any argument about whether reducing class size in the primary grades increases student achievement. The research evidence is quite clear: it does.*

Alex Molnar, 1999

The benefits of small class sizes, particularly in the primary grades, are becoming clearer with each new study. The research indicates that the greatest benefits are in classes with less than 20 students.

The most thorough research has been the **Tennessee Student/Teacher Achievement Ratio (STAR)** project. From 1985 to 1989, upon entering school, students in 79 elementary schools in Tennessee were randomly placed in small classes of 13 to 17 students, regular classes of 22-26 students, or regular classes with a teacher aide from kindergarten through grade 3. Students stayed in their class assignment until grade 4, when all were in regular classes. These students have been followed for 14 years. The latest results point to a lifetime of benefits from small classes.<sup>1</sup>

Students in small classes performed significantly better than their peers on

reading and mathematics tests. Students in small classes participated more in school and had fewer discipline problems. Minority students and inner-city students showed an even greater improvement when in small classes.

Furthermore, the benefits of small classes were cumulative; the more time the student spent in a small class, the greater the improvement. To reap the long-term benefits, students must spend at least two years in a small class. Students who spent four years in a small class received the greatest benefit.

These benefits were maintained when students were returned to regular class sizes in grade 4. The latest results show that the benefits of small class sizes in kindergarten to grade 3 last through high school. Students in small classes in the early years were less likely to drop out, more likely to graduate on time, more likely to take more challenging courses in high school, and more inclined toward college than their peers from larger classes (Pate-Bain, et al, 1999).

<sup>1</sup> A number of articles describe the STAR program. See for example Achilles (1999), Finn (1998), Molnar (1999) and Viadero (1999).

The benefits of being in a small class in the primary grades increased over time. In grade 4, students who attended small classes in kindergarten to grade 3 were 6-9 months ahead of students from regular classes. By grade eight, they were over one year ahead (Molnar, 1999).

Smaller classes do cost more money. But, fewer students repeating grades make up for that cost. More high school graduates with increased earning power adds more money to the economy and reduces the cost of social welfare benefits (Pate-Bain, et al, 1999).

The lead researcher on the Tennessee project, Dr. Helen Pate-Bain, states, *"I don't care how effective your teacher is. If you give her too many kids, she can't be effective."* (National Education Association, 1999)

The benefits of small classes have been found in other jurisdictions. A comparison of small class sizes in public schools and vouchers for private schools, two alternatives investigated in **Wisconsin**, unequivocally comes out in favour of small classes. The three-year-old **Student Achievement Guarantee in Education (SAGE)** program which reduces class sizes to 15 in kindergarten to grade 3 in low-income neighbourhoods is producing significant improvements, particularly for African-American students (*Rethinking Schools*, 2000).

In addition to the improvements that show up on achievement tests, teachers report that *"They get to know their students better, spend less time on discipline, and are able to provide students with more*

*individualized instruction. Generally, smaller classes go hand-in-hand with greater enthusiasm and achievement among both students and teachers."* (Dupuis, 2000) While some have disputed the increase in individualized instruction possible in small classes,<sup>2</sup> individualization includes more than one-on-one instruction. A focus on the needs of individual students occurs when teachers form small groups and during whole-class instruction. The smaller classes allow teachers to better know and understand the needs of the individual students, allowing intervention earlier when problems arise (Zahorik, 1999).

In the SAGE program, four classroom arrangements were examined: a class of 15 students with one teacher; one teacher and 15 students sharing a room with another teacher and 15 students; two teachers team teaching 30 students; and one teacher with 30 students except during reading, language arts, and mathematics when another teacher joins the class. All of these options outperformed students from other schools, but no difference was found in the performance of students in the different SAGE models (Zahorik, 1999). *"If this finding continues to be robust, it obviously has important implications about the cost of reducing class size."* (Molnar, 2000) It should be noted that the Tennessee STAR project found no statistical difference between regular classes of 22-26 students and regular classes with a teacher and a teacher aide.

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<sup>2</sup> Cizek (1999) only focuses on the amount of time a teacher can spend alone with each child and only accounts for a 50 minute class.

*If I'm a school administrator, I don't know how to get teacher quality. I do know for sure how to get a small class. While we stand around messing with teacher quality, we're going to lose a generation of kids.* (Charles M. Achilles, quoted in Viadero, 1999)

In 1996, California initiated a Class Size Reduction (CSR) program (CSR Research Consortium, 1999). Funds were provided by the state legislature to reduce primary class sizes from an average of over 30 to 20 or fewer students. It is a voluntary program; school districts that provide small classes are given extra money – \$650 per pupil in 1996-97 and \$800 per pupil in 1997-98. Money for new facilities is also available. State-wide, almost 90 percent of grade 1 students were in small classes in the first year (1996-97). In the second year, almost all grade 1 and grade 2 students were in classes with 20 or fewer students. When tested, students in grade 3 in small classes showed a small positive achievement gain.

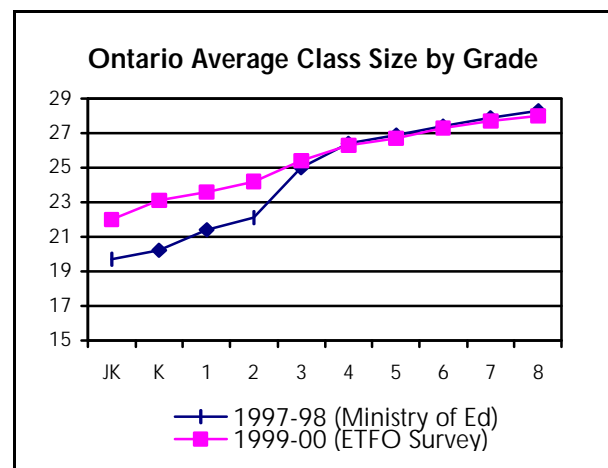
Molnar (1999) has summarized why small classes are so effective:

- *Children receive more individualized instruction, one-on-one help, small group help, class participation.*
- *Children misbehave less because of the family atmosphere and quick intervention by teachers.*
- *Teachers spend more time on direct instruction and less on classroom management.*
- *Classes include more "hands-on" activities although most instruction remains teacher – not student – centered.*

- *Students become more actively engaged in learning than peers in large classes.*
- *Teachers of small classes "burn out" less often.*

In Canada, British Columbia and Quebec have negotiated collective agreements that guarantee smaller class sizes in the early years. In British Columbia, no kindergarten class will be over 20 and no grades 1-3 class will be over 22 by 2000-01. In Quebec, primary class sizes will be reduced over the next four years to an average of 18 in kindergarten, 20 in grade 1 and 22 in grade 2. Alberta has initiated a pilot project to reduce class size.

In Ontario, the government mandated that starting in 1998 class sizes on a board-wide level should not exceed an average of 25 for elementary, 22 for secondary. This has resulted in dramatic increases in average class sizes in the primary grades in public elementary schools. Over the past two years, average class sizes for kindergarten to grade 2 have increased 9 to 14 percent. An ETFO study (2000) found that there are classes that are well over 30 at the elementary level.



In the provincial budget for 2000-01, a reduction was made to the mandated board-wide average class size. Starting in 2000-01, the board-wide average class size for primary grades is not to exceed 24; for all elementary combined, the board-wide average is not to exceed 24.5. For secondary, the new board-wide average class size is to be 21. This is counter to the research and the direction of other jurisdictions. Small classes, to have a beneficial effect for student achievement and behaviour, should begin in the primary grades and should be lower than 20. *"The S [small class] treatments is more preventative than remedial. If a student does not experience small classes when first entering the "system," there may be little gain without tutorials (the ultimate class size) or other expensive "treatments." This finding indicates that class-size initiatives should begin in the lowest grades and move ahead one grade at a time."* (Achilles, 1999)

The student focused funding formula brought in by the government in 1997 requires school boards to operate schools at or near full capacity. A number of boards will have to close schools over the next few years, in order to access funds to build schools in growth areas and to manage the restricted funds for programs and services. This will result in little flexibility to implement an effective class size reduction program – one of the problems experienced in California. Many districts in California have cut funds and space for other programs in order to access the funds for class size reduction. The ETFO school-based survey (2000) indicates that school space is already being diverted from other areas, such as library

and special education, to provide classroom space.

In some jurisdictions, small classes have been provided only to students with high needs. The research shows that minority and poor students make the most significant gains in small classes. However, Ontario should be following BC and Quebec's lead – a model whereby all benefit. *"Targeting small classes in particular schools or districts may provide the greatest benefits at a cost that is contained, although it may also mean denying the benefits to other students or schools."* (Finn, 1998)

A challenge faced by California was in hiring qualified teachers. More qualified and experienced teachers were hired in schools servicing higher income levels. The children in schools in lower income level areas, who, according to the research in Tennessee would most benefit from small classes, were less likely to be in smaller classes and more likely to have unqualified teachers.

Some districts in California found they had a funding surplus from the class size reduction support. Primarily, these districts were small, both urban and rural, and with fewer ESL students.

These challenges faced in California were because they implemented a good policy decision too quickly. This did not leave time to plan the implementation.

There can be no doubt that small class sizes in the primary grades produce a higher quality education system. All of the evidence points to the need for Ontario to

significantly lower class sizes in elementary schools, particularly in kindergarten to grade 3. The evidence also suggests that this must be done in a thoughtful way to avoid the challenges faced in California. School boards should not be allowed to divert funds and space for other programs in order to provide small classes for some students.

A phased in plan would be the best approach. Such a plan should begin with grade 1 in the first year, ensuring that no grade 1 class has over 20 students. The second year should expand to grade 2, incorporating clear maximum class sizes

for all grades, rather than averages. Given the wealth of data and analysis coming from the Tennessee STAR project, Ontario should include a research and evaluation process in its class size reduction program.

Small classes in the primary grades make sense for students, for teachers, for our education system and for our society. It is a proven education reform.

Can Ontario's students afford to be left behind?

Pat McAdie

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