

Class Size: Less is more

*The Manitoba Teachers' Society; Written Submission to Class Size and Composition Commission
November 2001*

The issue of class size and composition has been a major concern of our members, the public school teachers of Manitoba, for many years. This paper briefly outlines some aspects of the issue that need to be considered.

The paper presents these concerns as follows:

- The Benefits of Small Classes.
- Effects on Teachers of Smaller Classes.
- Consideration of Other Approaches.
- Class Size and Composition in Manitoba.
- A Balanced Perspective.

Research now clearly shows what teachers have always instinctively felt to be true. Small class size enables all students to reach their potential and the optimum class size for any class and level is directly related to composition of that class. A fair and reasonable outcome with regards to class size and composition can be achieved through the process of open-scope bargaining, which includes arbitration as the mechanism for dispute resolution, and through provincial legislation prescribing minimum standard requirements.

At the outset it is necessary to explore briefly the definition of small class size for the purposes of this discussion. In Tennessee's Project STAR (Student/Teacher Achievement Ratio) the most reputable and frequently cited study of class size, a "small" class was defined as one teacher with 13 to 17 students. Small classes were compared to "regular" classes consisting of one teacher with 22 to 26 students (Achilles, & Lintz, 1991). In order to have two distinctly different groups, students and teachers were randomly assigned to small or regular classes and there were no classes of 18 to 21 students. Nevertheless, the "tipping point" does seem to be between 19 and 20 students. This point has been used in other research projects such as the California Class Size Reduction (CSR) project where classes were reduced from 29 to a maximum of 20 (Brewer, Krop, Gill, & Reichardt, 1999). Even when class maximums are set at 20 there is still considerable daily variation in class size due to the vagaries of attendance, timetabling, and student migrancy. In this paper a small class will be defined as one that has been capped at 20 and would therefore be expected to hover, on a daily basis, slightly below that number.

The Benefits of Small Classes

Teachers have always known from their own experience that small classes provide better learning environments but now the most reliable research studies have confirmed the benefits for students of small classes. The most consistent benefit is the improvement in outcome measures of reading and mathematics achievement. Children seem to learn the concepts of these two basic skill areas at a better rate in small classes. Learning gains in literacy and mathematics are significant and lasting. Benefits seem to be greatest for children in the Early Years (K-4), for children from lower socioeconomic backgrounds, and for students with special learning needs.

Small classes seem to be particularly important for students in the Early Years-Kindergarten to Grade 4. In Tennessee's STAR Project the strongest effects were seen for Kindergarten and grade 1; the size of the effect was less in grades 2 and 3; statistically significant differences were found on all achievement measures and in all subject areas in every year of the study (Folger, 1989). Benefits were the greatest for children with special learning needs and for disadvantaged children. In the STAR project the gains for minority children were two to three times as large as those of white students (Finn & Achilles, 1999; Mosteller, 1995)

Gains are most dramatic and can be most readily demonstrated for children with special learning or social needs but there is good evidence that small classes help all children reach their potential. Where identified special education students are integrated into regular classrooms these classes must be smaller so that the needs of all students can be met. Where segregated classes exist for identified special education students, numbers are always kept extremely small i.e., in the single digits, because of the extra teacher time that is required to meet the needs of special education students.

The majority of the attention in class size research has been paid to the differences in student academic outcomes. Research has also shown other benefits beyond academic achievement that are influential in school success. Small classes were observed to have fewer incidents where teachers had to attend to student discipline (Zahorik, 1999). An environment with fewer discipline problems means a better adjustment to school for younger students and for older students a stronger bond with the social milieu of the school. Follow-up studies show that students with a history of small classes had fewer retentions in grade. Other studies have shown that students who are held back to repeat a year are more likely to become school drop-outs (Finn, 1998). Small class sizes also seem to contribute to better high school completion rates for students, and improved teacher morale (Harder, 1990).

Effects on Teachers of Smaller Classes

The positive effects of small class size on teachers' attitudes and feelings are not trivial. Teachers reported that in small classes they were more able to concentrate on teaching (Johnston, 1989). They spent less time in behaviour monitoring and control of disruptions because they were more able to deal with problems promptly as they arose and before they became serious. This resulted in a reduction in the amount of negative stress in the classroom environment (Zahorik, 1999).

Effects on teachers are important because the mechanisms for the delivery of the benefits of small class size to the students are unknown. The assumption is always made that students benefit from small class sizes because of increased individual attention but this causal relationship has not been demonstrated. The other frequent assumption is that in small classes teachers are more able to use a wider variety of instructional methods and strategies. Again, there is no clear demonstration of this link. It is equally possible that the benefits of small classes accrue because of changes in the social and emotional environment of the classroom. In small classes there are fewer behaviour problems of the two most common kinds—both the aggressive disruptions caused by some students and the emotional withdrawal of other students that may be precipitated by noise and stress. With the reduction in the number of disturbing incidents and a reduction in the number of disengaged students there is a change in the affective atmosphere of the classroom. It may be that a quieter, more serene environment yields better student outcomes, at least partly through the agency of heightened teacher attitudes and morale.

There is support for this explanation of the way that small class size results in better student outcomes, from recent research on brain development. One aspect of this research shows the importance of the emotional and psychological aspects of the learning environment. Learning is achieved when neural pathways are laid down in cooperation among several areas of the brain. These areas include those that control emotional regulation, attachment, and arousal, as well as those that control cognition and language. All of these areas are necessary in the creation and stabilizing of neural pathways (McCain & Mustard, 1999). This is one of the mechanisms by which negative stress interferes with learning and positive emotional/social contexts are associated with learning. The emotional quality of the interaction may be of equal or greater importance than the cognitive content. The calmer atmosphere of smaller classes, with the reduction of inappropriate behaviours, and fewer episodes of teacher management may be a more important component of what creates the difference than changed methods or increased interaction.

We can speculate then that changing teaching methods without reducing numbers will not give the same results as small classes. Benefits probably result from both increased teacher-student interaction and from the improved climate of a classroom with less noise and fewer disruptions. This would explain why some studies have showed student gains even when teachers have not yet introduced new teaching methods.

Teachers also have important perceptions of the way that the safety and viability of their classes as learning environments are enhanced by small size. They report that small classes are safer, partly because they are easier to manage and supervise. In contrast to public schools, regulated child care institutions have guidelines for age related caregiver-child ratios (1 to 8 for preschoolers, 1 to 15 for school age children) to ensure safety, programming, and care.

The class size issue has to be considered as well in the context of the increased expectations of teachers' roles and responsibilities that have developed in recent decades. Teachers have always had a heavy workload but they are now expected to take care of a wider range of student needs—including social and psychological needs.

King and Peart (1992) described teachers' work as essentially undefined and open-ended. Contracts usually define only minimum requirements while teachers almost universally do far more than is minimally required. Some teachers try to do more than is physically possible on a sustainable basis. Schembari (1994) in a Statistics Canada report, stated that workload constituted one of the main sources of stress for teachers in Canada. This report also found that teacher workload had increased in the decade from 1982 to 1992.

A Saskatchewan report (Gallen, Karlenzig & Tamney, 1995) linked workload and stress not only to the number of hours worked but to the diverse nature and intensity of the demands that teachers face. They describe teaching as a multi-track activity where teachers have to fill numerous roles under time pressure. Teachers have to make frequent decisions about the priority of several roles and, under pressure, the experience of role conflict is frequent.

Tataryn, Rowan, Hanson and Goguen (1998) found that in B.C. the largest single category of teacher disability was psychological disorders. The authors suggest that this was linked to stressful work environments. Drago et al. (1999) in a U.S. study of teacher workload, comments on the societal trend of what he calls “the overworked society” in which “high commitment work systems” have become the norm. In these systems workers have to take on, in addition to their core responsibilities, expanded responsibility for teamwork, training, meetings and involvement in administrative decision making. Drago et al. argue that in response to inadequate funding, education systems have forced school districts to implement a form of high commitment work-and for teachers this work expectation may be further exacerbated by local poverty, social needs, and the increasing diversity of school-age populations. In the light of this information, the observation in the research that teacher morale can be positively affected by smaller class size is an important consideration.

Consideration of Other Approaches

Some suggested cost-saving alternatives to class size reductions have been advanced. Some have suggested that the addition of paraprofessionals in the classroom would eliminate the need for class size reduction on the assumption that the positive effects are the result of adult-child interaction alone. Fortunately, there is evidence on this issue. In the Tennessee STAR study, the addition of a classroom teaching aide in the regular classes did not yield any significant differences in learning outcomes (Achilles, Finn & Bain, 1998; Finn & Achilles, 1999). The gains in achievement that were seen for students in small (13-17) classes were not found in the regular (22-26) classes even when these classes were provided with a teaching aide instead of a reduction in numbers. Adding an aide does not make the same difference as small class size.

Rescheduling or block scheduling of teacher time is not a promising suggestion either. The desired enhancements in learning are primarily in the skill areas of reading, writing, and mathematics. We now understand that literacy and numeracy are also achieved through the integration of learning objectives into instruction in the core content areas of science and social studies and in the instruction of other complementary subjects such as music, art, etc.

Another suggestion is that class size reductions should be targeted for particular students (early years) or in areas where effects may be greater (school catchment areas with low per capita income). Maybe in some cases this could be effective but targeted enhancements are notoriously difficult to implement in education. In this case they would not address concerns about class composition and case load. They are also generally not well-accepted by parents whose children do not receive the enhanced program.

Class Size and Composition in Manitoba

Pupil-teacher ratios (PTR) do not function as good tools for informing us about class size because teachers who work as administrators or provide instructional support are included in the full time equivalent (FTE) teacher count (Akerhielm, 1995). The numbers of these teachers will vary widely from one school division to another, from school to school, during the school year, or from year to year. While these teachers are certainly important for the functioning of an education system, their inclusion in the calculation of PTRs tends to underestimate the numbers of students that each teacher is directly responsible for.

Class size would be a better indicator of the educational experience of students and teachers. However, class sizes are seldom the firm numbers we would like them to be. Some schools have high student transience rates; attendance varies widely; instruction is scheduled differently in schools and for different groups of teachers.

Class sizes by school division/district or even by region are not publicly known for Manitoba. Average class size for the province and the range of class sizes are also not known. It is probably safe to say that most classes in Manitoba could be described as regular size (in the twenties) or large size (in the thirties) and that average class sizes vary widely by program, by school division/district, and by region. These assumptions cannot be used as a basis for policy, however. Provincial and divisional class size numbers should be reported and should be publicly available in Manitoba, as they are in most of the other provinces of Canada.

The work of teachers in the Middle Years and Senior Years would also be poorly described by class size numbers. These teachers do not typically spend their instructional hours in the same classroom with the same group of students. They may teach several different subjects at one or more grades and in the course of the day may be responsible for teaching a large number of individual students. These numbers may also vary in the course of the five or six day cycle that is used for scheduling purposes. For these teachers, the concept of total “case load” or workload may be a better way of describing their responsibilities than the concept of class size.

Furthermore, numbers by themselves do not tell the whole story. There is limited research on the effects of class or group composition on the learning conditions or outcomes for the whole group. Teachers, however, know from their own experience that the composition of a class may be the most cogent feature of it. A single student with disturbed or disordered behaviour can seem like ten on a bad day (and like three, even on a good day). Adequate (or inadequate) facilities and materials can also make a big difference. We need to know more about the effects of composition on teachers and students and about how the availability of classroom supports in a system has an impact on classroom environment and student achievement.

The number of students with special learning needs (level 1) in classrooms in Manitoba is also known only in general. Estimates from many other jurisdictions place the number of these students somewhere between 10 to 12 percent system wide. The proportion is clearly greater in inner city schools and in some other specific areas and schools. In the system as a whole, and in specific divisions, the number of special education students (level 2 and 3) who are integrated into classrooms and to what extent they are integrated is reported separately in several different forums. We do not have any system-wide information on the impact of integrated children on the learning of their classroom peers but we do know that teachers have raised this as a major concern.

A new concept is needed to describe the workload factor that has an impact on teachers’ working conditions and on students’ learning conditions. The concept of “instructional load” has been suggested to be composed of the following elements:

1. the instructional needs of the number and diversity of students for the subjects and grades that a teacher is responsible for.
2. the total number of students with whom a teacher interacts on a daily basis.
3. the nature and intensity of the instructional needs of students with special learning needs and/or challenging behaviours who are included in the group(s) of students.
4. the nature and intensity of the instructional (and administrative) needs of special education students who are integrated into the class(es) or group(s) of students
5. the number of hours that the teacher is in direct contact with students.

In this context it is obvious that beyond the concept of class size, the composition of a class is an essential element to be considered. The larger concept of instructional load includes composition, and the further elements of total numbers and contact time.

There is little specific research addressing the effects of class composition and instructional load on student outcomes. In spite of this, reduction of class size remains a single achievable way to improve the quality of education for all children. In research on educational outcomes, effect sizes are usually very small. This makes the significant differences in achievement demonstrated in the class size research, especially compelling. It is extremely rare in educational research to find a single organizational or administrative change, like class size reduction, that can be demonstrated to have such an unequivocal effect on achievement outcomes. Much of the difference in academic achievement between children and between groups of children is accounted for by family variables such as socioeconomic status and the educational achievement of parents (Lytton & Pyryt, 1998). These are obviously variables that cannot be modified but class size is an effective and potent variable that is amenable to change. Therefore, it would be irresponsible of an educational system to ignore this route to the improvement of achievement outcomes.

Teachers know they can do a better job of meeting students’ needs with smaller classes as one way to improve educational outcomes. It is essential that class composition issues are also addressed. Teachers who are responsible for large numbers of students in a single day also know that the factor of total case load must be given equal consideration as well. Teachers are learning experts for their students. They know what makes a difference in teaching and learning. They are the ones who are there in the classroom every day.

A Balanced Perspective

There is no doubt that class size and composition are linked to quality of education. However, the tendency of government and school boards has been to focus more on cost considerations when making decisions regarding class size and composition. In doing so, they may not sufficiently take into account the other considerations of education quality. As in most other school board business, when school boards make decisions about class size and composition, the decisions are influenced first and foremost by funding availability and local fiscal priorities.

In contrast to the provincial government and the Manitoba school boards, the main concern of teachers and parents in this province has always been the quality of education. The priority given to quality of education by teachers and parents is nothing new. Teachers for instance have always argued for good working conditions, because they know from experience that good working conditions foster an environment which produces good learning conditions.

The above conflicting priorities regarding the issue of class size and composition call for a balanced outcome. In order to ensure a balanced outcome it is important that the interests of all parties concerned, students, teachers, parents, and trustees, are taken into account. While teachers and parents are particularly concerned with the quality of education, other stakeholders may have different priorities. A balance is required that addresses the concerns of everyone involved by reconciling the competing interests.

The process of collective bargaining provides one forum for reaching a balanced outcome with respect to class size and composition. Determining class size and composition through the process of free and fair collective bargaining allows the interests of both sides to be heard. This in turn will permit a balanced outcome based on taking into account the quality of education and relevant cost considerations.

The collective bargaining process for teachers in Manitoba ensures that disputes arising between the parties are resolved without disruption to the operations of the education system. In the event the parties reach an impasse in collective bargaining the matter is referred to arbitration. Manitoba teachers gave up the right to strike and in return they accepted that all matters relating to the terms and conditions of their employment could be submitted to arbitration for resolution. Therefore, it is only fair and reasonable that class size and composition, along with all other working conditions, be arbitrable.

At the arbitration hearing an arbitration board hears the dispute between the teachers' association and the school board. Both parties make presentations and submit evidence regarding their respective proposals on the items in dispute. The arbitrators then attempt to make an award that reflects a proper balance between the demands and interests of the parties. Arbitrators know that it is not their role to impose their own values and views on the parties but to take into account and weigh carefully all relevant information provided by both parties.

Since arbitration is in effect a continuation of the collective bargaining process, the fairness and integrity of the process is undermined if some issues are negotiable but not arbitrable. The inability to take a disputed item to arbitration effectively means that there is no ability to negotiate it. Fairness can only be achieved through open-scope bargaining that includes class size and composition as negotiable items.

In other provinces, class size is a negotiable issue with disputes being resolved by either strike or arbitration. This has not caused untenable problems in education. Furthermore, class size limitations exist in a wide range of collective agreements across Canada, and this reality has not created a problem with respect to the operations of the education system. There is absolutely no evidence or any reason to treat Manitoba teachers differently by restricting their bargaining rights with respect to the matter of class size and composition.

It is clear that, in light of the often conflicting interests of the various parties involved, it is essential that issues over class size and composition be resolved through the process of collective bargaining. While it is absolutely essential that class size and composition become bargainable and arbitrable working conditions, there is, however, also a need for legislation respecting a minimum standard requirement for class size and composition. Such a standard would benefit both teachers and students in Manitoba and establish a measure of equity in service delivery and teacher workload across the province.

It is critical, however, that legislation respecting minimum standards does not take the place of the collective bargaining process. Collective bargaining must play a fundamental role in achieving an outcome based on the interests of all parties involved. While legislation will prescribe a minimum service requirement regarding class size and composition, collective bargaining will enable the parties to negotiate changes and improvements beyond this minimum.

While there is undoubtedly great pressure on school boards to keep taxes low to satisfy rate payers, the question of investment in education is far more than one of cost. When consideration is given only to costs, the outcome becomes a short term solution to a much broader problem. Addressing the fiscal priorities of governments and local school boards and not paying attention to class size and composition is a solution only over the very short term. Over the longer term, teaching situations that carry a large instructional load can be expected to compromise the quality of education in Manitoba public schools especially in their ability to provide for social mobility. A lower quality of education, due to the lack of progress on class size and composition, can have negative spill-over effects that may extend far beyond the school system and fuel a whole host of social problems in society at large. Hence in the end the long term costs can be expected to exceed by far any short term savings.

There has been a tendency on the part of governments and trustees to lose sight of the fact that society has an investment in the quality of education. In the long run investment in education pays off. Students in the Manitoba school system are the human capital that will support the provincial economy in the future. Thus, everyone has an investment in seeing students receive the best quality of education that the system can provide.

Small classes facilitate effective teaching and learning environments, lead to better quality of education, and also address long term cost concerns. The costs associated with maintaining small classes and better working conditions will be outweighed by the benefits and cost savings related to improved educational attainment and its spin-offs.

Focusing on short term savings is a very expensive strategy for Manitoba. Ignoring class size and composition issues gives rise to many hidden costs and adverse consequences for society at large. Small classes provide a continuous stream of net benefits to society. These benefits outweigh the costs in the long term, and the benefits never disappear and instead accumulate in the economy over time.

The performance of the provincial economy is contingent upon the quality of its human resources. When decisions are made that compromise the quality of education, then the level of educational attainment, and in turn the quality of human resources of this province, will suffer. Inevitably this can be expected to have negative consequences for the performance of the provincial economy over the long term.

This paper has discussed, first, small class size and class composition and its relation to instructional load and the learning environment, and second, the need for an open-scope bargaining process and public policy on class size and composition. It has highlighted the positive effects of small class size on students' learning environments and teachers' working conditions and furthermore, concluded that the optimum class size for any class and level is directly related to composition of that class. Following an overview and discussion of the link between class size and composition and quality of education, the paper addressed the problem of the different and often conflicting priorities between various stakeholders. The argument was put forward that a fair and reasonable outcome with regards to class size and composition can be achieved through the process of open-scope bargaining, which includes arbitration as the mechanism for dispute resolution, and through provincial legislation prescribing minimum standard requirements.

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