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Report on Education
from the Deputy Minister of Education

April 21, 2006

More Discussion Regarding Class Size

The Learning Roundtable met again today to discuss the important relationship of Class Size and Composition to the Learning Conditions for students. You will hear more of the outcomes of that meeting over the days ahead.

Is the issue of class size complicated? You know it is because of the attention you give it each year when you organize your school. Is there a simple answer? Scholarly research has not found one.

Class size is very dependent on the actual students in the class and the nature of the learning those students are undertaking. Many school districts and schools are differentiating staffing to address the varying needs of learners. Dr. Ron Rubadeau, Superintendent, School District #23 (Central Okanagan), undertook an action research project and set out to study the results for students.

I asked Ron to help me prepare an article on the "Achieving a Necessary Future (ANF)" project. Ron's findings follow.

The piece I found most significant in this article was that although the cause is not clear, the teachers involved in the work found ways of bringing the most vulnerable in this school district to achievement levels at or exceeding district and provincial averages. I have spoken before about "soft bigotry". Some believe that some students from certain backgrounds cannot be expected to achieve at usual levels. This study is proof positive, in these five Central Okanagan schools, that the teachers assisted their students to debunk this notion.

Longitudinal Class Size Reduction Results

April, 2006

Abstract

In the 1999/2000 school year, the Central Okanagan School Board approved the *Achieving A Necessary Future (ANF)* project; an experimental primary class size reduction program aimed at improving performance in the District's five most 'challenged' elementary schools. Schools were selected to participate in a program based on historical poor academic performance, prevalence of large numbers of both 'hard' and 'soft' special needs students, and a high rating on the Early Childhood Vulnerability Index. The ANF project was loosely based on the Tennessee Star project and like the Tennessee Star, the objective of the ANF was to create small primary classes in order to improve later achievement for "at risk" students, while reducing the need of at risk students for Special Education Support.

Implementation of the project began during the 2000/01 school year, when the class sizes at the kindergarten and grade 1 level in the five experimental schools were reduced to 18 or less students. Additionally, all teachers participating in the experimental program received in-service aimed at improving instructional literacy and numeracy teaching skills.

As each cohort progressed into the next grade, class sizes were maintained at the 18 or less ratio. When the first cohort of experimental students was in the grade 4 program, performance data was evaluated by virtue of three sources: FSA, CAT 3 and teacher benchmark comparison.

Discussion

Data indicates that the vast majority of the ANF cohort achieved results that are significantly improved from the baseline established over the previous five years. However,

not all experimental schools achieved all effects and, indeed, some showed a decline in the final year performance as compared to the baseline. And while it may be that the overall result was achieved because the class sizes were lowered, there may be other sources which caused specific improvement as well as negative effects. Contributing factors may include higher expectations by teachers, improved teaching styles, the presence of the Hawthorne effect, statistical regression, program drift as well as a desire by teachers in the experimental group to retain their reduced class size. It is likely that some, or all of these factors, were at work as any longitudinal project is subject to the subtle behavioural changes by program delivery staff to bias the outcome of the project. In particular, program drift comes into play as experimental schools introduced elements that were not part of the original design, including "SuccessMaker Software", intervention by specialist staff, teacher-directed classroom groupings, and even the development, in one school, of a school uniform policy.

At the outset, the ANF project set forth to discern if prejudicial treatment, provided to schools and students with a history of poor performance, could change the achievement levels of students. So established was the pattern of performance within the five experimental schools, that teachers, principals and trustees believed that students attending those schools were incapable of average achievement, and that those schools would never demonstrate a performance that rivaled more advantaged peers in other jurisdictions within our community. Such a position is no longer sustainable as most schools within the ANF project demonstrated results in Reading that were at, or above, the Provincial and District norms, while all schools achieved results well above the Provincial norm in Numeracy. Most importantly, some ANF schools achieved results reserved for the most affluent school catchment areas; environments highly correlated with exceptional student achievement.

Clearly, it has been determined that students identified as "at risk", poor, or "minority students" in the context of this School District can achieve results that are equal to, or better than students that may be labeled "advantaged", "affluent" or "majority".

While some would like to point to reduced class size as the reason for this change, the author of the project, Dr. Ron Rubadeau, believes it is premature to judge class size as the reason for the positive effects as a result of the following factors:

- The change in each experimental school's Grade 4 population was achieved three years before the effects could have occurred. The first year assessment of the Grade 4 class in each ANF school shows a marked change in results from the previous year(s), even though the students assessed had never participated in a class size reduction project.
- A Hawthorne effect may be present.
- Program drift away from experimental design was observed in all schools.
- Twice as many of the same comparison cohort students failed teacher-judged benchmarks in reading in grade 4 in comparison to grade 1; only 30% of those students, who exceeded teacher-judged benchmarks in grade 1 numeracy, exceeded in grade 4.

The Central Okanagan will continue the project for the next two school terms to determine longitudinal success. One factor remains abundantly clear, however. Lower class sizes do not result in less Special Education staff. Indeed, in each of the experimental schools, the request for service has increased in comparison to all non-experimental schools.

WHAT To test the improved achievement and need for Special Education Services of primary students who had been in a small class for at least three years.

WHERE Five selected experimental schools in the Central Okanagan.

WHEN 2000 to ongoing.

WHY Data indicates that students from these schools:
- have poor achievement in intermediate grades
- have significant numbers of "soft" Special Education students
- are less likely to graduate than their peers.

WHO 240 students in the five experimental schools.

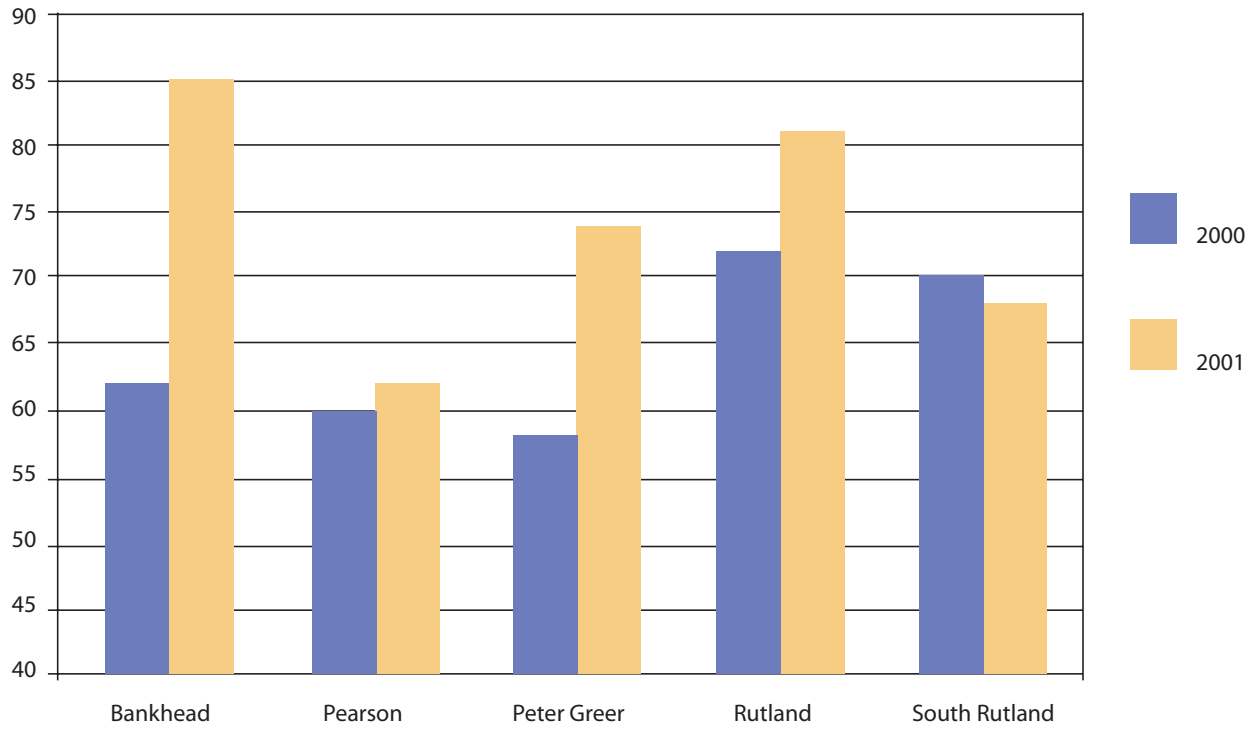
Of the original group, 197 stayed until grade 4 in one of the five experimental schools.

RESULTS Three out of five schools within the project achieved success rates at, or near, the District and Provincial FSA norms in **Reading**.

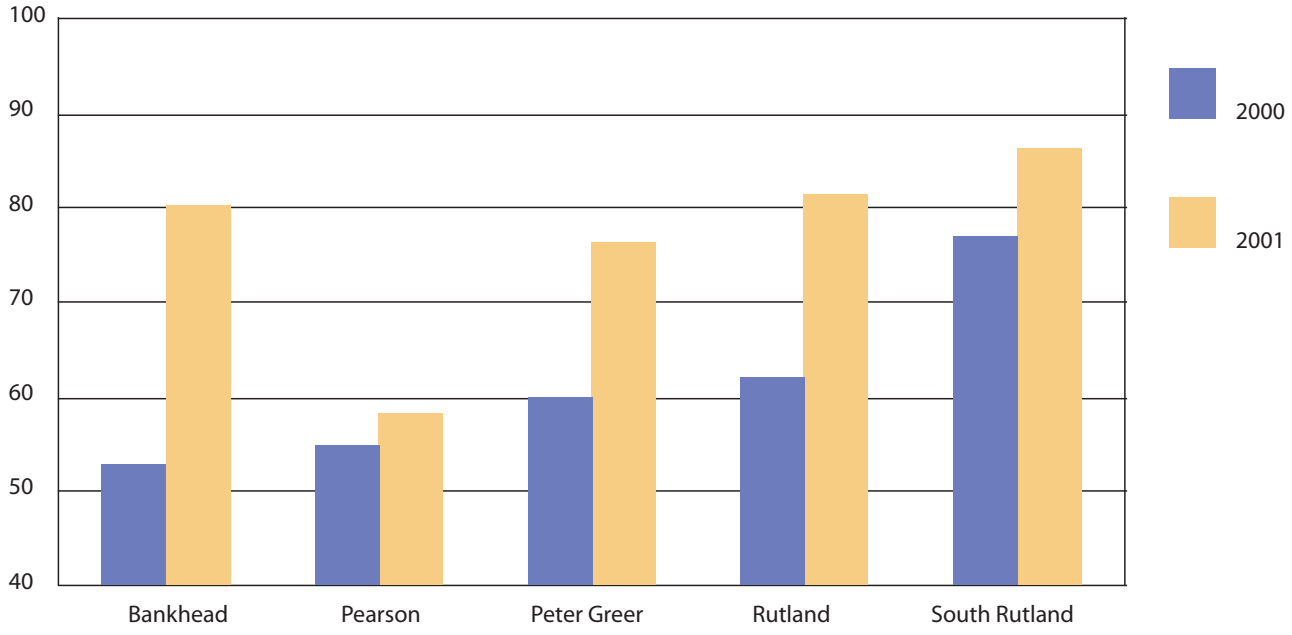
Five out of five schools within the project achieved success rates at or above District and Provincial FSA norms in **Numeracy**.

Requests for Special Education support *(specialist teachers, learning assistance teachers, resource teachers and teachers' aides)* increased above the levels observed in non-experimental schools.

Comparison of Grade 4 Reading Results Between the Baseline and the First Year of Class Size Reduction to Grades K and 1



Comparison of Grade 4 Numeracy Results
Between the Baseline and the First Year of Class Size Reduction to Grades K and 1



Same Cohort Teacher Judged Bench Marks in Grades 1 and 4

School	Expectations	Grade 1 Reading No. of Students	Grade 1 Numeracy No. of Students	Grade 4 Reading No. of Students	Grade 4 Numeracy No. of Students
Bankhead	Exceeds	6	0	6	7
	Meets	30	42	30	33
	Not Yet Meets	7	1	7	3
Pearson	Exceeds	10	1	1	1
	Meets	27	36	24	31
	Not Yet Meets	2	2	14	7
Peter Greer	Exceeds	4	1	0	3
	Meets	24	31	30	27
	Not Yet Meets	5	1	3	3
Rutland	Exceeds	6	4	2	6
	Meets	33	36	28	29
	Not Yet Meets	2	1	11	6
South Rutland	Exceeds	8	2	1	4
	Meets	21	36	25	30
	Not Yet Meets	12	3	15	7
TOTAL number of students in each category in all experimental schools	Exceeds	34	8	10	21
	Meets	135	181	137	150
	Not Yet Meets	28	8	50	26
		197	**197**	**197**	**197**

Was it class size or one of the other variables that are suggested that caused this result? I guess we still do not know. One thing is sure – the combination of the impact of the teachers teaching and the children learning made a difference.

I am certain that Dr. Rubadeau and the principals and teachers of the schools involved in ANF would be happy to discuss their approaches further with you.