



Canadian Education Association
linking . listening . learning . leading since 1891

ONTARIO'S PRIMARY CLASS SIZE REDUCTION INITIATIVE: REPORT ON EARLY IMPLEMENTATION

FEBRUARY 2010



ONTARIO'S PRIMARY CLASS SIZE REDUCTION INITIATIVE: REPORT ON EARLY IMPLEMENTATION

Published by the Canadian Education Association
317 Adelaide Street West, Suite 300
Toronto, ON M5V 1P9
Tel: 416.591.6300
Fax: 416.591.5345
www.cea-ace.ca

© Canadian Education Association 2010

All rights reserved. No part of this publication may be reproduced mechanically without the permission of the publisher

ISBN: 1-896660-46-0

Principal Investigator:

Dr. Nina Bascia, Ontario Institute for Studies in Education (OISE), University of Toronto

Research Team (OISE):

Dr. Christine Connelly
Dr. Joseph Flessa
Dr. Blair Mascall

Doctoral Student Researchers (OISE):

Pannel Chindalo
Brentan Faubert
Eric Fredua-Kwarteng
Joannie Leung
Cindy Rottmann

Canadian Education Association (CEA):

Penny Milton, Chief Executive Officer
Christa Freiler, Director of Research
Eva Gakiza, Project Officer - Research

Acknowledgements

CEA and the research team would like to acknowledge the following for their contributions to this research study: school district administrators, principals and teachers from the eight participating school districts; senior staff at the Ministry of Education who agreed to be interviewed; Ministry of Education policy and operational staff who reviewed drafts and offered invaluable feedback; People for Education and the 3,000 parents who completed an online survey. We also acknowledge the important contribution of the Project Advisory Committee but stress that this report does not necessarily reflect the views of the committee nor of individual members. Finally, CEA would like to acknowledge the financial contribution of the Ontario Ministry of Education.

The related national report, *Reducing Class Size: What Do We Know?* and the literature review, *Class Size Reduction: What the Literature Suggests about What Works* are available on the CEA website at www.cea-ace.ca/classsizereport

TABLE OF CONTENTS

CHAPTER 1: Summary and highlights	6
Key questions	6
What does the existing research base say about class size reduction?	6
What was the policy context for class size reduction and its intended effects?	6
What are the province-wide trends in achieving primary class size reduction?	7
What direction or support did school districts provide to schools during PCS implementation?	8
How has the role of principals as school leaders changed in response to the reduction of primary class sizes?	8
How have students' and teachers' experiences of teaching and learning changed in relation to the reduction of primary class sizes to 20 or fewer students?	9
How has parents' engagement with their children's schools changed in relation to class size reduction?	10
Implications and further considerations	11
Further consideration 1: Professional learning for teachers	11
Further consideration 2: Effective instruction in combined-grade classrooms	11
Further consideration 3: Strategies for grouping students and assigning teachers	12
Further consideration 4: Balance between provincial and local decision-making	12
CHAPTER 2: Research on class size reduction and factors that influence policy implementation	13
Research literature on class size reduction	14
Modelling	14
Classroom dynamics	15
Teacher opinion surveys	15
Research syntheses	15
Large-scale research and development projects	16
What we can learn from policy implementation research	20
Variation within and across individuals, groups and settings	20
Resource capacity	21
Policy coherence	23
CHAPTER 3: Policy context and implementation strategies	24
The idea of primary class size reduction	24
New infrastructure	25
Support and pressure	26
Synergies and possible coherence	26
Labour relations	26
Instructional focus	27
Politique d'aménagement linguistique (PAL)	27
Special education	28
Professional learning for teachers	28
Ontario leadership strategy	29
Parental involvement	29

CHAPTER 4: Province-wide trends in PCS implementation	30
Funding.....	32
Operating funding	32
Capital funding.....	36
Changes in numbers of primary classes and primary teachers	39
Proportion of primary classes by class size.....	43
Average class sizes for primary, junior and intermediate levels	44
Changes in combined grades.....	50
Discussion	53
CHAPTER 5: PCS implementation at the school board level	54
Direction or support provided by school boards.....	54
Board-level perceptions of PCS.....	55
Key issues identified by school board staff and officials.....	55
Other issues.....	56
CHAPTER 6: PCS implementation and principals' work.....	59
Overview.....	59
Constraints of middle management	60
The hard cap	60
Combined-grade classes	61
Tradeoffs with teachers.....	62
Instruction.....	62
Positive impacts on instruction.....	62
Negative impacts on instruction.....	63
Relationships with parents.....	64
Perceived connections to other initiatives.....	64
Underlying conceptions of school leadership	65
CHAPTER 7: The impact of PCS on primary classroom dynamics.....	66
Literacy strategies in practice	66
Teacher familiarity with children	69
Special education.....	70
Combined-grade classes	71
Space and instructional resources	72
Discussion	72

CHAPTER 8: Reports from teachers on teaching and learning.....	73
Teachers' perceptions of students	73
Instructional practice since PCS.....	75
Teachers' working conditions.....	76
Quality of working relationships.....	77
Teachers' perception of success	79
Junior and intermediate teaching and learning.....	79
Perceptions about students.....	81
Instructional practices	81
Working conditions.....	81
Professional relationships.....	82
Overall success	82
Combined-grade ("split") classes.....	82
Discussion	82
CHAPTER 9: Parents' perceptions of primary class size reduction	84
Discussion	92
CHAPTER 10: Implications and further considers	93
Further consideration 1: Professional learning for teachers	94
Further consideration 2: Effective instruction in combined-grade classrooms	94
Further consideration 3: Strategies for grouping students and assigning teachers.....	95
Further consideration 4: Balance between provincial and local decision-making	95
REFERENCES	97
APPENDIX A: Research methodology	105
APPENDIX B: Consent letters and interview protocols	108
Consent letter: School board administrators and principals	108
Interview protocol: School board administrators (June 2007).....	110
Interview protocol: Principals	112
Consent letter: Teacher survey.....	114
Classroom observation protocol.....	116
Interview protocol: Classroom teachers.....	117
Interview protocol: Special (ESL, SpecEd, Resource Teacher) and junior/intermediate teachers	118
E-mail Message from People for Education to Provincial Parents E-mail List	119
Online Parent Survey.....	120

ILLUSTRATIONS IN THIS REPORT

Table 4-1. Enrolment Trends for Primary Students in Ontario, 2004-05 to 2007-08, By School Board Enrolment	31
Table 4-2. PCS Funding for Teachers, 2004-05 to 2007-08, By School Board Enrolment	33
Table 4-3. Average Allocation of New Classes and Funding, By School Board Enrolment	34
Table 4-4. Distribution of New Teacher Allocations and Funding to School Boards, By Region & Urban/Rural/Suburban Divide.....	35
Table 4-5. Distribution of New Teacher Allocations and Funding to School Boards, By Sector	36
Table 4-6. Capital Funding for PCS, By School Board Enrolment	37
Table 4-7. Changes in Non-Permanent Elementary Classrooms at Ontario School Boards, 2002-03 to 2007-08	38
Table 4-8. Numbers of Primary Classes, 2003-04 to 2007-08, By Grade.....	40
Table 4-9. Grade 3 and 4 Combined Classes, 2003-04 to 2007-08.....	41
Table 4-10. Numbers of Students in Grade 3-4 Combined Grades, 2002-03 to 2007-08	41
Table 4-11. Change in Number of All Primary Classes per Board, By School Board Enrolment	42
Table 4-12. Numbers of Elementary Teachers in Schools, 2000-01 to 2007-08 (on the Teacher Salary Grid, Full Time Equivalent).....	42
Table 4-13. Number of New Teacher Positions Funded by PCS, 2004-05 to 2007-08	43
Table 4-14. Percentage of Primary Classes by Class Size, 2003-04 to 2007-08.....	43
Table 4-15. Average Primary Class Size, 2003-04 to 2007-08.....	44
Table 4-16. Average Primary, Junior and Intermediate Class Size, 2003-04 to 2007-08.....	45
Table 4-17. Change in Numbers of Classes, by Division, By School Board Enrolment, 2004-2007	46
Table 4-18. Average Number of Students per Junior and Intermediate Class, By Grade, 2002-03 to 2007-08	46
Table 4-19. Junior and Intermediate Enrolments Across the Province, 2002-03 to 2007-08	47
Table 4-20. Change in Number of Junior and Intermediate Classes, 2003-04 to 2007-08	48
Table 4-21. Distribution of Junior Classes by Class Size, 2002-03 to 2007-08.....	49
Table 4-22. Distribution of Intermediate Classes by Class Size, 2002-03 to 2007-08.....	49
Table 4-23. Numbers of Combined-Grade Classes Compared to Single-Grade Classes in Elementary Schools, 2003-04 to 2007-08	50
Table 4-24. Change in the Number and Percentage of Elementary Combined Grade Classes, By School Board Enrolment, 2003-04 to 2007-08.....	51
Table 4-25. Number of Unbalanced Combined Primary Grade Classes With at Least $\frac{3}{4}$ of the Students in One Grade, 2002-03 to 2007-08	52
Table 8-1. Teachers' Perceptions of Students Since PCS Implementation.....	74
Table 8-2. Teachers' Perceptions of Instructional Practices Since PCS.....	76
Table 8-3. Teachers' Perceptions of Working Conditions Since PCS.....	77
Table 8-4. Teachers' Perceptions of Quality of Working Relationships Since PCS.....	78
Table 8-5. Teachers' Overall Perception of Success Since PCS.....	79
Table 8-6. Class Size Ranges for Study Schools, Class Tracker Data for 2007-08 School Year.....	80
Table 9-1. Parents' Perceptions of Their Children's and Their Own Experiences During the 2007-08 School Year, Compared to Prior Years, in Primary as Compared with Junior and Intermediate	85
Table 9-2. Parents' Perceptions of Their Children's and Their Own Experiences During the 2007-08 School Year, as Compared to Prior Years in Combined Grade Classes.....	88
Table 9-3. Parents' Perceptions of Their Children's and Their Own Experiences During the 2007-08 School Year, as Compared to Prior Years, for Children with Special Education Needs in Regular Classes	91

CHAPTER 1: Summary and highlights

Reduction in the size of classes from Kindergarten to Grade 3 was a major Liberal Party campaign promise in Ontario's 2003 provincial election. It was intended to demonstrate a new government's commitment to improving public education. By the 2008-09 school year, the provincial government's goals had been achieved: over 90% of all primary classes had 20 or fewer students, and *all* primary classes had 23 or fewer students.

The provincial government has much to be proud of. The speed and totality of success in achieving primary class size (PCS) reduction has been remarkable.

Through a contribution agreement with the Ministry of Education, the Canadian Education Association contracted with a team of researchers from the Ontario Institute for Studies in Education in 2007 and 2008 to conduct the study that resulted in this report. The report is based on reviews of the research on class size reduction, analyses of statistical data collected by the Ministry of Education over a five-year period, and research across the province in eight school boards, 24 schools and 84 classrooms. (See Appendix A for a full description of the research methods.)

This report focuses on the benefits and consequences of Ontario's primary class size reduction initiative in its early days. Its primary purposes are to reveal strengths and challenges and to provide recommendations that will increase the potential of PCS to achieve provincial goals for high-quality education.

Key questions

What does the existing research base say about class size reduction?

Class size reduction has received much interest over the past several decades in a number of western countries, and the research base is extensive. There is some evidence that smaller classes improve student learning and that reducing primary class size, in particular, has long-term effects. But what size class is "small enough," how and why reducing class size works, and under what conditions it works, are all under-explained.

The class size reduction research has not always paid serious attention to the complex processes and dynamics involved in teaching and learning. These, as well as the organizational structures that surround and shape them, require comprehensive and nuanced understandings of educational practice. Some of the most robust research findings about educational reform emphasize the importance of the very factors that are under-specified in the literature on class size reduction: what *variations across students, teachers, schools and school systems* might matter; the ways *resources and other forms of capacity* influence the quality and magnitude of impact of policy initiatives; and the relative *coherence of policy influences* within which educational practice occurs. These three broad concerns form the basis for the analyses in this study.

Chapter 2 reviews the literature on class size reduction and the concepts derived from educational reform research. Together, they provide the analytic framework for the study.

What was the policy context for class size reduction and its intended effects?

Ontario's educational system is large and complex. The 4,903 schools in the province are administered by four different school board systems, distinguished by language of instruction (French/English) and historical religious roots (Catholic and public). The 72 school boards range from very large urban boards such as Toronto and Peel to many small boards in rural

and northern areas. In 2006-07, the first year of the study, the elementary system included 3,980 schools, 1.4 million students, and 77,462 elementary teachers.

Primary class size (PCS) reduction sprang into being as a specific, well-defined election promise that very quickly became a provincial government objective. Situating the new policy in relation to other provincial activities and priorities then followed. Although reducing primary class size had been perceived as a simple policy idea, implementation proved to be a significant undertaking. At the provincial level, Ministry of Education staff needed to develop new funding categories and databases, draw disparate data sources together, make existing databases more publicly accessible, and gather information that had not previously been collected. The task was further complicated because school boards did not all have the planning and tracking practices necessary to meet provincial reporting requirements.

PCS was implemented incrementally from 2004-05 through the 2007-08 school years. Funding for salary and benefit costs for 1,200 new teachers per year was provided to school boards in each of the four years. Funding for new classrooms was also provided, including a small percentage for classroom set-up costs such as furniture and instructional materials. An inventory of school facilities, the submission by boards of long-term capital plans, and enrolment projections for every grade and school, allowed the province to estimate the required number of new classrooms.

PCS is one of several strategies undertaken during the current government's first and second terms in office to improve student achievement; reduce differences in educational outcomes across groups of students with different social characteristics such as gender, economic status and ethnicity; and build public confidence in public education. The other strategies have potential synergistic relationships with PCS and must be taken into account when trying to understand the impact of PCS on educational practice. They include:

- increasing the capacity of teachers of primary students (Kindergarten to Grade 3) and junior students (Grades 4-6) to use "high yield" instructional strategies for reading, writing, speaking, and mathematics;
- reducing barriers to high academic achievement through programs that support English- and French-language learning; boys' literacy; First Nation, Métis and Inuit education; and special education;
- developing a New Teacher Induction Program and a teacher performance appraisal strategy, and supporting a broad range of professional learning opportunities for teachers to improve the quality of classroom instruction;
- addressing the leadership development and training of principals, supervisory officers, and school board directors; and
- developing structures to increase parents' engagement in education.

Potential intersections among primary class size reduction and the above initiatives are discussed in more detail in this report.

Chapter 3 describes the policy context and the actions taken by Ontario's Ministry of Education toward reducing primary class size.

What are the province-wide trends in achieving primary class size reduction?

The data suggest that Ontario schools are complying with PCS requirements, nearly achieving ministry targets by 2007-08, which was the target date.¹ Implementation was slow at first, but accelerated in 2006-07 and 2007-08 to meet the provincial government's expectations.

¹ More recent data show that the 90% target was fully achieved by 2008-09. This report, however, covers the period up to the 2007-08 school year.

Whether a board's enrolment was expanding, holding steady, or declining influenced how PCS was achieved. The number of combined-grade classes has increased, especially in primary grades. Average junior and intermediate-grade class sizes have not increased since before PCS implementation, but this average masks higher and lower class sizes in some schools.

Financial data collected annually by the Ministry of Education reveal an investment of over \$400 million for new primary teachers and over \$716 million for capital improvements toward primary class size reduction. Due to the per-student funding formula, the majority of these funds went to the school boards with the largest primary student enrolments: English public and Catholic boards clustered around Toronto in the south.

Chapter 4 describes province-wide trends in funding, class sizes, numbers of teachers and classes, and combined-grade classes from the 2003-04 school year, before implementation of Ontario's primary class size reduction initiative, through 2007-08, the final year of the study.

What direction or support did school districts provide to schools during PCS implementation?

School boards' PCS-related directions and support to elementary schools focused on planning and monitoring the allocation of new teachers and class sizes to ensure policy compliance. Most of the eight school boards visited during the study achieved compliance through increasingly specific board directives on how schools should implement PCS. In some of these cases, school boards required that schools establish combined-grade classes as the norm, in order to manage differences between enrolment projections in the spring and actual enrolments in September and still meet the target.

Most school board administrators that we interviewed perceived PCS as a managerial task without a strong or direct connection to literacy or other local program priorities. Administrators in only one of the eight boards seem to have recognized the potential opportunities for program innovation afforded by PCS. School board administrators had generally positive comments about the potential benefits of PCS, but these were tempered by the challenges of meeting the "hard cap"—the requirement that boards have 20 or fewer students in 90% of all primary classes, and 23 or fewer students in *all* primary classes, rather than simply a board *average* of 23 or fewer students.

Chapter 5 describes what school districts did with respect to PCS implementation.

How has the role of principals as school leaders changed in response to the reduction of primary class sizes?

In the 24 schools visited during the study, principals' descriptions of their roles in relation to PCS implementation centred on smoothing out potential difficulties associated with policy compliance. Most perceived the numeric requirements of PCS as a higher priority than other possible considerations about quality of instruction. Principals noted that the hard cap had cascading implications across all grade levels in a school: if Grade 1 enrolment numbers were not a multiple of 20, combined grading implicated Grade 2, which likely had an impact on Grade 3, and so on, usually up through all the grades in the school. They described the yearly process of allocating teachers and students to classes in terms of negotiating tradeoffs—for example, promising that teachers who taught combined-grade classes one year would be provided with single-grade classes the next. Like school board administrators, they expressed high hopes for the potential of PCS to improve instruction but were less clear on whether they had seen such improvements. Nearly all principals identified unintended negative consequences for student learning and teachers' work. While Chapter 4 demonstrates no *overall* change in the size of junior and intermediate classes, there were strong concerns in nearly every school visited. The growing number of combined-grade classes was also of

concern. Principals, like others in the system, are deciphering potentially contradictory mandates from above: on the one hand, the expectation that they provide instructional leadership in their schools by weighing the consequences of grouping and staffing decisions on program quality, and on the other that they simply do as they are told.

Chapter 6 describes principals' perceptions of their work in relation to PCS implementation.

How have students' and teachers' experiences of teaching and learning changed in relation to the reduction of primary class sizes to 20 or fewer students?

Observations in a representative subset of the 84 primary classrooms visited during the study suggest that literacy instructional strategies were strong influences on teaching practice. Small primary classes appeared to provide opportunities for children to actively engage with a rich language environment. In interviews with researchers, primary teachers said that smaller primary classes meant more time to assess and help individual students who were experiencing learning difficulties. A notable change was the degree of individualized instruction provided to students with special educational needs who were integrated into regular primary classes, especially students identified as having learning difficulties in reading and writing. PCS appeared to support provincial initiatives dedicated to enhancing resource support for students with special educational needs.

Teachers also have begun to exploit the potential of small-group-oriented activities. These steps represent the possibility of more effectively engaging students with a variety of learning styles and abilities through a wider range of teaching strategies. The smaller class has the potential to propel primary teaching and learning away from teacher-directed, prescriptive approaches involving children's individualized work and toward instruction that is more child-centered, child-directed, communicative, and exploratory, and that is more helpful in developing higher-order cognitive skills.

The actual process of delivering literacy instruction varied across classrooms. In some classes, researchers noted an emphasis on communicating meaningful ideas, authentic language production, and critical and creative thinking. But in many of the classes and schools we visited where there were students from lower-income, racial minority, and immigrant backgrounds, teachers tended to incorporate fewer opportunities for differentiated instruction. That is, we noted that the combination of smaller classes and new instructional strategies did not benefit all students to the same degree.

Chapter 7 describes instructional practices observed in primary classrooms. Chapter 8, in turn, documents primary, junior, and intermediate teachers' perceptions of the impact of PCS on the quality of teaching and learning conditions.

Through interviews and survey responses, primary teachers in all 24 study schools reported improvements in teaching and learning conditions in ways that may be directly attributable to primary class size reduction, or at least to which PCS likely played a contributing role. Teachers perceived fewer learning challenges among their students as being insurmountable. They claimed smaller classes allowed them to make significant changes in instructional strategies. They reported that the quality of classroom space had improved—a claim that seems attributable to less crowding and greater potential for more varied instructional activities. Many perceived their working relationships with other teachers and administrators as having improved. Overall, they expressed a greater sense of success and more positive relationships with their students than in the past.

Teachers also reported that junior and intermediate teaching and learning conditions differed from those of primary teachers and, in their estimation, may have actually been reduced in

quality. While junior and intermediate classes, on average, did not increase in size as a result of PCS, large classes were identified as challenges for teachers and students in upper-grade classes. Compared with primary teachers, junior and intermediate-grade teachers were more likely to report that students' learning difficulties had not changed or had increased. As a group, they reported that their working conditions and professional relationships had reduced in quality.

How has parents' engagement with their children's schools changed in relation to class size reduction?

An online survey filled out by self-selected parents from every school board in the province provides information on parents' perceptions of the quality of their children's classroom experience and their interactions with teachers and principals. More parents of both primary and upper-grade students reported improvements in their children's engagement in learning, fewer behavioural challenges, more positive social interactions, improved teacher knowledge of children's learning needs and abilities, and better-quality discussion with teachers about children's learning needs and abilities. These comments parallel those of teachers and administrators, and parallel our own observations regarding the benefits of PCS—increased attention to individual students' learning needs and the social realities of the classroom. They also suggest the potential of PCS to improve support for student learning by enhancing opportunities for substantive teacher-parent communication.

In terms of parents' perceptions about combined-grade classes, parents of children in combined *primary*-grade classes were fairly consistent with those of the entire primary-grade parent group. However, parents of *junior and intermediate* children in combined grades reported greater challenges than those of the entire population of parents of upper-grade children. These parents were more likely to report that their children experienced greater learning difficulties and had fewer positive social interactions, and were less likely to report that their children were more engaged in learning.

The parents of *primary* children with special education needs who work in regular classroom settings were slightly more positive on every item on the survey than the entire population of primary parents. But parents of junior and intermediate children with special education needs who work in regular classroom settings are three to five percentage points less positive than the entire sample of parents of upper-grade children on every item.

Chapter 9 reports primary, junior, and intermediate parents' perceptions of the impact of PCS on their children's school experiences.

Implications and further considerations

There is ample evidence from our research that many children in primary classes are receiving more effective instruction than in the past because of primary class size reduction. However, reducing class size has the potential to improve the learning conditions for students with a wider range of learning needs than it currently does. At the same time, PCS has resulted in some unintended consequences that need to be addressed in order to achieve the provincial government's commitment to improving academic achievement for all children.

The three factors identified early in the report—variation within and across individuals, groups and settings; resource capacity; and policy coherence—underpin the identification of the following further considerations.

Further consideration 1: Professional learning for teachers

We propose that more work be done at the provincial and district levels to provide professional learning opportunities to enhance teachers' confidence, competence, and willingness to provide high-quality learning for all students.

Teachers' capacity to create high expectations for all students, and the resulting provision or restriction of opportunities to learn, is a longstanding problem that has been documented in the research for many years. In our field research, we observed that some teachers of primary classes have not yet taken full advantage of the opportunity that smaller classes offer to improve learning for all students. For example, some teachers are still struggling to work effectively with low-income, racialized-minority, and immigrant students.

The Ministry of Education has begun increasing teachers' capacity to respond to a broader range of students' learning needs by developing programs to support English- and French-language learning; boys' literacy; First Nation, Métis and Inuit education; and special education. The recently launched Equity and Inclusive Education Strategy, along with government support for poverty reduction, also aims to tackle discrimination and disadvantage.

Further consideration 2: Effective instruction in combined-grade classrooms

We propose that the Minister's Curriculum Council's working group on the elementary curriculum review the current elementary curriculum's learning goals and objectives in relation to teachers' capacity to provide effective instruction in combined-grade classrooms.

Professional learning strategies could be introduced at the provincial government and school-board levels to enhance teachers' instructional skills. Student grouping might also be decoupled from staffing at the school level by developing practices that group students with different teachers for different kinds of instruction.

The number of combined-grade classes in elementary schools has increased, and many teachers and parents report that teaching is not always effective across grade levels, particularly in larger classes such as those at junior and intermediate levels.

The problem of less-than-optimal teaching in combined-grade classes may reflect teachers' limited capacity to implement effective instructional strategies in multi-grade classrooms.

Some educators cite a lack of policy coherence between the large number of specified grade-level learning outcomes and the realities of combined-grade classes as a possible issue.

Further consideration 3: Strategies for grouping students and assigning teachers

We propose that school boards and schools consider innovative strategies and greater flexibility for grouping students and assigning teachers throughout the elementary grades. Consideration should be given to the cascading effects of choices made for the primary grades on the junior and intermediate grades, as well.

Children need effective learning environments at all ages. Ensuring that such conditions are available in the junior and intermediate grades is as important as in the primary grades.

Teaching and learning in junior and intermediate-grade classes have become more difficult compared to primary-grade classes. While the average junior and intermediate classes have not become larger than they were in the past few years, junior teachers find it difficult to implement provincial literacy and numeracy instructional strategies, and many educators report an increase in the number and severity of special education needs. These factors appear to make larger classes challenging environments for teaching and learning. There is a commonplace assumption that an investment in class size reduction is most cost-effective in the primary grades because it can facilitate children's development of the foundational skills, dispositions and socialization patterns necessary for success in school, but there may be little actual robust evidence to confirm this.

Further consideration 4: Balance between provincial and local decision-making

We propose that the Ministry of Education, together with key stakeholders, review and clarify its policy strategy with respect to the balance between central direction and local strategic development. The Ministry of Education could use its existing infrastructure to provide some support for developing local leadership capacity in ways that reflect a dynamic balance between provincial and local decision-making.

The clarity and specificity of the PCS requirements are strengths in terms of successfully reaching provincial government targets on time, but they did not increase the likelihood of sound programming decisions, and resulted in some unintended negative consequences. The ability and flexibility of school and board leadership to work toward program coherence may be inadequate. While the Ministry of Education identifies building local leadership capacity as a priority, the centralized control of PCS means that exercising this capacity was not possible because of limited leadership discretion.

CHAPTER 2: Research on class size reduction and factors that influence policy implementation

This chapter reviews the extensive research on class size reduction to provide a clear basis for the research strategies undertaken in this study of Ontario's primary class size reduction initiative.² The chapter provides an overview of the literature on class size reduction, emphasizing the assumptions as well as the omissions that have characterized the research and led to some difficulties in understanding how and, in fact, whether it can be applied to inform policy and practice.

Class size reduction is a policy idea that has received much interest over the past several decades in a number of western countries. The idea makes a kind of intuitive sense; it “feels good.” In some jurisdictions, the policy has been introduced as if reducing class size alone will make a positive difference in the quality of teaching and learning. Sometimes it is accompanied by additional features, such as targeted professional learning for teachers, or additional resources to support student learning.

The research on class size reduction is extensive. It has received attention from economists, statisticians, psychologists, sociologists, political scientists and policy analysts. It has evoked concerns about cost efficiency and effectiveness, financing, teacher salary and equity. There also is a fair amount of literature on the problems of research design and the interpretation of research results. A large proportion has been conducted in the U.S., although research has also been conducted in Canada, Australia, the Netherlands, and the U.K. Even though we limited our exploration to works that had been published in the past 20 years, our initial searches brought up more than 500 journal articles, conference papers, government documents, and teacher union and research institution reviews. Out of this large number, we ended up with about 90 works that provided clear evidence, gave precise explanations of their purpose, and commented on the social, political, and economic contexts in which class size was researched, debated, or adopted as a reform policy.

Despite its magnitude, the research is ambiguous about whether class size reduction is an effective reform strategy and even about what effectiveness means. The claims and conclusions of researchers leave much unexplained and unexamined. Information on what policy-makers thought could be achieved by class size reduction or by what means they thought such improvements would occur is rarely articulated. Often the research has been conducted at a distance from the action and we can not tell what was actually going on in practice. This distance sometimes led to confusion about what class size reduction actually is and how it could be measured. Often strong sentiments in favour of or against the idea of class size reduction seemed to have coloured researchers' conclusions. Often, too, researchers did not identify factors that might influence the results in the jurisdictions they were studying and, therefore, were unable to provide solid recommendations for implementing class size reductions elsewhere.

In this review, we consider class size reduction as an instance of policy implementation. This strategy, which has not informed much of the class size reduction research, lets us focus on how it might work when it is brought into existing schools and school boards. The research suggests that the capacity to support initiatives like class size reduction with a minimum of unintended consequences and to ensure quality teaching and decision-making are of fundamental importance. The final section of this chapter identifies factors relevant to

² A complete version of the literature review on which the early sections of this chapter are based is available at <http://www.cea-ace.ca/media/en/ClassSizeReduction.pdf>

educational reform that provide the basis for the analyses in the rest of the report.

Research literature on class size reduction

The literature on class size reduction covers a lot of ground but can be clustered according to the questions it tries to answer and the methods used to conduct the research. This section describes the following major research strategies in the class size reduction literature:

- the development of abstract models of costs and benefits associated with class size reduction;
- observations of classroom teaching practice and evidence of student engagement;
- summaries of survey results reporting on teacher or parent perceptions of class size reduction;
- syntheses of past research; and
- in-depth descriptions of large-scale class size reduction initiatives, the research published on those initiatives, and critiques of the research among educational policy analysts.

Modelling

The most common question studies try to answer is: “Does class size reduction improve student learning?” Studies that address this question tend to focus on an actual jurisdiction where class size reduction was attempted and consider the evidence for improved student outcomes, most often as captured by some kind of standardized student test results (Blatchford & Mortimore, 1994; Edmonton Public School, 2001; Finn, Gerber, Achilles, & Boyd-Zaharias, 2001; Kruger & Whitmore, 2002; Miles & Gamoran, 2006; Scudder, 2002; Shapson, Wright, Eason, & Fitzgerald, 1980), but also by other measures such as student high school graduation (Sharp, 2002), pregnancy and incarceration rates (Krueger & Whitmore, 2002).

Another common question is whether class size reduction is more cost-effective in improving student learning than policy choices that focus on the quality of teaching, such as teacher selection, teaching effectiveness and professional learning (Allen & Lynd, 2000; Krueger & Hanushek, 2000; Normore & Ilon, 2006; Odden, 1990), usually as measured by standardized test results.

Some of the research accounts for student demographic characteristics such as race and socio-economic circumstances in order to discern how those from traditionally academically underachieving groups compare with students with more social and economic advantages (Blatchford, Goldstein, Martin, & Browne, 2002; Konstantopoulos, 2008; Reichardt, 2001).

What these studies have in common is that they look at large numbers of cases (students, classes, schools and even jurisdictions) in order to determine general trends. The data they consider—dollars spent, test scores, graduation and incarceration rates—are quantitative (numeric) and can be plugged into mathematical equations. The intent is to come up with generalizable conclusions that would apply beyond the specific cases from which the actual data are drawn. What is significant about this research is that, despite apparent lack of attention to the details of what and how students are learning in smaller class settings, many have found that class size reduction is associated with at least modest improvements in student outcomes. As described later in this chapter, however, concerns have been raised about the utility of data and methods used to arrive at these conclusions.

Classroom dynamics

A small group of studies investigates what goes on in classes where class size reduction has occurred. The question these studies focus on is: “To what extent and how are teachers changing how they teach and interact with students when class size is reduced?” Observing what teachers and students do (sometimes repeatedly over a several-year period) and analyzing teachers’ logs of classroom activity and interviewing teachers, these studies provide concrete descriptions of what actually happens in classrooms and the conditions in which it happens. They note when and where teachers are able to individualize instruction (Burke, 1986; Korostoff, 1998; Shapson, et al., 1980; Zahorik, 1999) and manage student behaviour differently, even when students show no gains in academic achievement (Blatchford, Bassett, Brown, Martin, & Russell, 2004; Englehart, 2007). These studies also note the opportunities that class size reduction provides for establishing positive relationships, and how the benefits of class size reduction vary across subjects, grades and types of students (Gilstrap, 2002). This kind of study has allowed some researchers to comment that sometimes student learning improves with no noticeable change in instructional practices. Perhaps students’ easier access to teachers is responsible for improvements in learning, regardless of instructional strategies (Toppo, 2008).

From this research we discover that some teachers are more effective than others, and that the benefits vary depending on grade, subject and context. We learn that class size does seem to make a difference, sometimes, in the kinds of teaching strategies selected by teachers. We also learn that teachers’ ability to teach in ways that target students’ individual learning is not innate—it takes time to develop new teaching strategies.

Teacher opinion surveys

We found several reports that summarize opinion survey results, specifically intended to provide concrete evidence on contested issues in specific jurisdictions for decision-makers. For example, a survey of teachers and administrators across the U.K. demonstrates that the effects of large classes are masked when national-level decision-makers have access only to broad averages (Bennett, 1996). A similar survey of Ontario teachers, conducted before the current primary class size reduction initiative, reports that the actual range of class sizes, including larger classes, was not visible when only school and board averages were reported (Ontario English Catholic Teachers Association, 1999). Parental perceptions of class size reduction also form part of the database in some of the larger-scale studies. This research raises important questions about the utility of using averages to assess large-scale initiatives like class size reduction, and reveals how class size reduction is actually experienced by involved adults.

Research syntheses

The literature also includes several well-balanced and comprehensive research reviews that try to synthesize findings across jurisdictions. These articles raise questions not usually considered in the types of studies identified above. Some suggest that class size effects are not generalizable because it is impossible to account for all the variations within and beyond classrooms that might influence what class size reduction means. Others maintain that the effectiveness of class size reduction depends on teachers changing their practice and the necessity of factoring in professional development costs (Finn, 2002; Hopkins, 1998, February 16 and February 23). They suggest that teacher morale is an important and not incidental reflection of, as well as a contribution to, the success of class size reduction (Graue, Oen, Hatch, Rao & Fadali, 2005; Manitoba Teachers’ Society, 2001; see also Blatchford & Mortimore, 1994). They also raise important questions about the utility of the research methods that have been used in studying class size reduction.

Large-scale research and development projects

Studies that describe what happened when a jurisdiction implemented a class size reduction initiative usually incorporate several of the research strategies identified above. Many of these studies portray class size reduction in a rosy light. Few describe what happens when school systems try to fund these initiatives (Odden & Archibald, 2001) and hire more teachers, when schools must find room for additional classes, and when teachers must learn how to work with students differently than they have in the past (Ogawa, Huston, & Stine, 1999; Jepsen & Rivkin, 2002).

This section describes three well-researched large-scale studies on class size reduction for specific discussion: Tennessee's Student-Teacher Achievement Ratio (STAR), Wisconsin's Student-Teacher Achievement Guarantee in Education (SAGE), and California's Small-class Project. This section describes the main features of these initiatives, and their strengths and omissions.

- *Tennessee's Project STAR*

Tennessee's Student-Teacher Achievement Ratio (STAR) is one of several longitudinal studies on class size reduction conducted in the U.S. (Mosteller, 1995). The four-year study (1985-89) was intended to determine the effects of class size reduction on student academic achievement in literacy and mathematics from Kindergarten through Grade 3 (Sanogo & Gilman, 1994). The study involved 76 schools and 42 districts with low average family incomes, and cost almost \$13 million per year to design and implement.

In STAR schools, students were randomly assigned to three types of classes: 13-17 students per teacher; a control group consisting of classes with 22-25 students per teacher; and classes with full-time teacher aides and 22-25 students. Teachers were randomly assigned to one of the three class types in each of the four years. New students were also assigned randomly to class type according to existing vacancies. By the project's fourth year, almost one-third of the students had been in the same class type the entire time; the other two-thirds had moved from one to another class type.

Students' academic performance was measured by several standardized achievement tests. Student development also was measured using a self-concept and motivation inventory (Folger, 1989). In-service training was organized so teachers could take advantage of the instructional opportunities of small classes. Teachers received varied amounts of training, and some received none. In each school, teachers were observed once teaching reading and mathematics lessons (Folger, 1989; Sanogo & Gilman, 1994).

In each year of the study, some of the benefits of small classes were greater for minority students than for non-minorities, and greater for students attending inner-city schools than suburban and rural schools. No differences were found among students across class types on the motivational scales, yet students who had been in small classes were rated as expending more effort in the classroom, taking greater initiative with regard to learning activities, and displaying less disruptive or inattentive behaviour compared with their peers in regular-size classes.

STAR data also have been analyzed to examine whether the effects of small classes fade after five years. Nye, Hedges, & Konstantopoulos (1999) found that, while the small class effect is smaller in Grade 8 than at Grade 3 post-test, it is still statistically significant. Students who experienced more years of small classes in Kindergarten through Grade 3 have higher levels of academic achievement (adjusted for social class) five years later than students who have had fewer years of small classes. The researchers assert that the positive effect of small classes in K-3 "may" last "at least" until high school. Their conclusion is that "the positive effects of small

classes on achievement that are large enough and of sufficient duration support policies of reduction of class sizes to result in small-sized (15-17 pupils) classes in the primary grades" (p.140).

The STAR project has had many critics. Sanogo and Gilman (1994) argued that politics was the primary motivating factor behind the STAR project, not scientific inquiry. Folger and Breda (1989, p. 18) suggested that teachers' support of STAR was rooted in "self-interest" that may have coloured the research findings (see also Basham & Hepburn, 1999; Bennett, 1996; Greene & Forster, 2003; Mitchell & Mitchell, 2003; Sack, 2005). Other researchers believe that STAR may have suffered from a "Hawthorne effect" —that teachers and students in the experimental groups tried harder than those in the control groups to increase student academic achievement (Graue et al., 2005; Sanogo & Gilman, 1994). Graue et al. (2005) argued that the sample in the STAR project was not typical or representative of the U.S. population—would the results of the STAR project have been significantly different if the study sample had been different? Hanushek (1999) found a number of inconsistencies in the research design, including test-taking practices, student assignment to classes, the absence of randomization in school selection, and the movement of students across treatment groups. He contends that since there are many uncertainties around project STAR, it should not be used as justification for class size reduction. Konstantopoulos (2008) reports that STAR did not "narrow the achievement gap": lower-achieving students benefited less than higher-achieving students.

In fact, researchers in the field are widely divided on further experiments on class size reduction. According to Graue et al. (2005), by pursuing "why" and "how" questions in education research (why and how do things work as they do?), we will be able to develop a theory of action. Joan McRobbie, interviewed by Graue et al. (2005), suggests that we need a much more synthetic and derivative understanding of the existing literature on class size reduction for the purpose of guiding policies.

Despite these criticisms, STAR continues to be the most widely-touted evidence that primary class size is a worthwhile investment of public funds.

- *Wisconsin's SAGE*

Wisconsin's Student Achievement Guarantee in Education (SAGE) focused on low-income and minority students in reduced size classes from Kindergarten through Grade 3 over five years, beginning in 1996-97. Thirty schools with at least 50% of children living below the poverty level began the program in K-1. Grade 2 was added for these schools in 1997-98 and Grade 3 in 1998-99. Seventeen schools with similar student characteristics served as comparison schools.

The SAGE program involved reducing the pupil-teacher ratio within a classroom to 15 students per teacher, establishing "lighted school-houses" open from early in the morning until late in the evening, developing "rigorous" curricula, and creating a system of staff development and professional accountability (Molnar, Smith, Zahorik, Palmer, Halbach & Ehrle, 1999). SAGE included five different classroom configurations: "regular" classes with 15 students; shared-space classrooms with two teachers and 30 students; floating teachers coming into classrooms with 30 students for some subjects; split-day classrooms with 15 students and two teachers; and three-teacher team classrooms with 45 students. The SAGE study focused on the effects of class size reduction on student academic achievement in reading, language arts, and mathematics in Grades 1 through 3, and on the effects of class size on teaching that may account for program effects on student academic achievement. Student learning was ascertained by standardized achievement test scores.

The SAGE project reported that students in the program at all three grade levels achieved significantly higher achievement test scores than students in comparison schools in mathematics, reading and language arts (Molnar, Smith, & Zahorik, 1998). It was estimated that while the SAGE effect varies by subject matter, it represents one-third to one-half of a school year's growth when compared to the norm. The study reported that the SAGE program helped to narrow the Black-White achievement gap in Grade 1 by as much as 38%, and prevented it from widening in Grades 2 and 3. It was also reported that SAGE teachers individualized their instruction, offered hands-on activities to their students, and developed deeper and greater knowledge of their students.

SAGE did not report on the possible impact of different classroom organization formats on teaching or student achievement. Further, the use of different classroom configurations raises the issue of what class size really means. Class size (CS) has been a confusing concept because it is usually conflated with pupil-teacher ratio (PTR). Achilles (2003) notes that a classroom consisting of 30 students that includes another teacher for reading, language arts and mathematics has a class size of 30, not 15. SAGE class size thus is not 15 but ranges from 15 to 45. European researchers have introduced another concept, Pupil-Adult Ratio (PAR) (Annelink, 2004) which includes all adults who work with a student or who contribute to a student's academic well-being, such as speech therapists, Reading Recovery teachers, special education teachers, bilingual teachers and educational assistants.

SAGE is the only study that has included any attention to school leadership issues. A study by Burch and Theoharis (2005) found that principals' influence mattered in determining the use of classroom space, serving the needs of diverse groups of learners, and building teacher capacity. While some principals focused on solving space problems, others maintained the status quo, resulting in a variety of classroom configurations in SAGE schools. Some principals maintained separate classrooms for special education students, while others saw SAGE as an opportunity for integration of special needs students into regular classrooms. Finally, some principals interpreted the professional learning components of SAGE as peripheral to the program, while others regarded them as crucial to its effectiveness. Still, the effects these different leadership practices had on classroom processes or student achievement is not known.

The SAGE evaluation of teachers' classroom behaviours relies exclusively on data from teacher surveys and interviews. Independent classroom observations and student interviews might shed more light on the authenticity of changes in the classrooms that teachers have reported. And finally, SAGE evaluations disclose little information about teacher characteristics. While teachers were interviewed about how they altered their teaching in small classes, little was said about characteristics such as length of professional experience, race/ethnicity, educational attainment, and the length of time teaching a specific grade. This information is crucial for generalizability, specifically with respect to sample-to-population extrapolation, analytic generalization, and case-to-case transfer (see Firestone, 1993).

- *California's Class Size Project*

In 1996-97, California provided \$971 million in incentive funding for school districts to voluntarily reduce K-3 classes to 20 students per class. By 2002-03, funding for this program had grown to \$1.7 billion, making it one of the most costly programs in the state and the biggest class size reduction (CSR) program in the U.S. California's CSR was enacted in response to a ten-year decline in achievement scores and to reports of overcrowded classrooms, unqualified teachers, and poor academic performance, especially for minority students and English-language learners (Korostoff, 1998). With a massive budget surplus, a booming economy and the news of the impressive claims of project STAR, the state government decided to implement CSR state-wide (Graue et al., 2005).

Some studies report positive effects. Graue et al. (2005) report minimal gains in the form of increased test scores after the second and third year, more time for teaching, less time spent on discipline, and more parent-teacher interactions (see also Holloway, 2002). For example, Grade 3 students enrolled in reduced size classes performed better on standardized achievement tests than did students in regular classes, and this gain persisted after the students moved to larger Grade 4 classes. The gains in achievement were uniform for all students, regardless of socio-economic background, fluency in English, or ethnicity/race (Stecher, Bohrnstedt, Kirst, McRobbie, & Williams, 2001). The evaluators of CSR, however, while acknowledging the increase in test scores, did not link it to CSR, contending that factors other than small classes were responsible for increases in academic attainment (Bohrnstedt & Stecher, 2002).

Parents of children attending smaller classes rated all aspects of educational quality higher than did parents of children enrolled in non-reduced classes. Parents of children enrolled in reduced size classes also reported having more contact with teachers and expressed higher satisfaction with schools. Teachers expressed enthusiasm and satisfaction with teaching 20 students rather than 30 (Korostoff, 1998). Some research suggests that this enthusiasm itself may be one of the important factors that make class size reduction effective in increasing student achievement (The California Education Policy Seminar and The California State University Institute for Educational Reform, 1996).

Korostoff's (1998) research, focusing on classroom practice in Grade 1 and 2 classes, revealed that teachers appeared to change their teaching strategies over time. In the first year, teachers were largely unaware of instructional strategies appropriate for small classes, but in the second year, teachers interacted more frequently with students one-on-one and were able to cover the curriculum content more rapidly. Stecher et al. (2001), on the other hand, found that instructional practices in Grade 3 were consistent across classrooms regardless of class size—teachers did not individualize or spend a reasonable amount of time working with individual students. Are these differences in findings traceable to differences in research methods across the studies, or is there something intrinsically different about teaching Grade 3?

Overall, the research on CSR is by far the most thorough in terms of implementation issues, and consists of some of the most critical in the entire body of literature on class size reduction. The capstone evaluation report, completed in 2002, reported that most school districts faced budget shortfalls as a result of class size reductions, and many took dollars from other programs to support CSR implementation, especially in the areas of facility maintenance and administrative services. About one-third of the state's districts also reduced resources for teacher professional learning, computers, and library programs (Bohrnstedt & Stecher, 2002). A question that arises is this: is it worth it to sacrifice these programs for smaller classes?

The CSR program's demand for additional classroom space led to the conversion of special education rooms, libraries, auditoriums, and childcare spaces into classrooms. The hardest-hit schools were those serving poor children and English-language learners (Graue et al., 2005). The rapidity with which CSR was implemented made necessary a 38% increase in the teaching force (Stecher et al., 2001; Graue et al., 2005). School districts competed among themselves and with other sectors of the booming economy for teachers. Some qualified teachers in schools serving poor children transferred to more affluent schools, leaving the schools serving poor children without teachers (Jepsen & Rivkin, 2002). The high demand for teachers also affected teacher training: at least one program had to modify its requirement for supervised clinical field work. Some student teachers were allowed to accept full-time teaching positions and use such teaching experience as a substitute for their official field experience (Turley & Nakai, 1998).

Perhaps the most devastating consequence of CSR was that most of the unqualified teachers hired on an emergency basis ended up teaching in schools that serve racial minority and English-language learners. Schools serving poor and minority students saw a drop of more than 16% in the number of qualified teachers (Jepsen & Rivkin, 2002). There was a great need for in-service professional learning because so many of the teachers were inexperienced and lacked credentials, but McRobbie, Finn and Harman (1998) suggest that neither new nor old teachers received significant professional learning. Graue et al. (2005) and Bohrnstedt & Stecher (2002) assert that the failure of California CSR can be traced to its failure to combine it with professional learning for teachers.

What we can learn from policy implementation research

The research on class size reduction provides some evidence that smaller classes improve student learning and that small classes at the primary level, in particular, have long-term effects. But how small is small enough, how and why class size reduction works, and under what conditions it works, are all under-explained. While some of these shortcomings can be attributed to inconsistencies in the research, we believe this murkiness is symptomatic of the all-too-common tendency to think about educational policy as a series of discrete directives that have the power to transform educational practice in some unexamined, almost magical ways (McLaughlin, 1987). In many jurisdictions, large, centralized, bureaucratic educational systems operate under assumptions that students, teachers, schools and school districts are basically interchangeable, and that educational practice is basically technical work that can readily be defined, specified, monitored and prescribed by the uniform application of rules and requirements (Bascia & Hargreaves, 2000; Darling-Hammond, 1997). This “remote control” approach to policy decision-making views program details and local variation as largely irrelevant. This way of thinking about policy does not consider the more indirect effects that operate within and through existing settings, transformed and adapted to conditions of the settings in which they are implemented (Clune, 1990; McLaughlin & Talbert, 2001; Oakes, 1989; Werner, 1991).

Policy implementation research suggests this “theory of action” about how policy works has serious limitations. The complex processes and dynamics involved in teaching and learning, as well as in the organizational structures that surround and shape them, require more comprehensive and nuanced understandings of educational practice. Some of the most robust research findings about educational policy implementation emphasize the importance of paying attention to the very factors that are under-specified in the literature on class size reduction: the *disaggregation* of data on students, teachers, schools and school systems to recognize what kinds of differences might matter; the ways *resource and other forms of capacity* influence the quality and magnitude of impact of policy initiatives; and the relative *coherence of policy influences* within which educational practice occurs. These three broad concerns form the basis for the analyses undertaken in the study of Ontario’s primary class size reduction initiative.

Variation within and across individuals, groups and settings

Paying attention to potential differences across different populations and settings is a powerful strategy that allows researchers to develop useful explanations of *how* policy implementation works. For example, *students* do not all come to school with the same skills and supports. Ontario’s schools include English and French native language speakers but also many others whose proficiency in either of the two official languages of instruction is limited. Culture, ethnicity and personal family circumstances all influence the meaning and value of schooling for children and their parents and the ease of “fit” with the regular school curriculum (Bascia & Jacka, 2001; Metz, 1989; Miles & Darling-Hammond, 1998). Socio-economic status affects children’s home stability, basic needs such as food and shelter, and

resources beyond the school that support academic learning. How effectively do teachers, principals, school boards and provincial program initiatives address these differences among students and take them into account? Specifically, given Ontario's commitment to ensure that "factors such as race, gender and socio-economic status do not prevent students from achieving ambitious outcomes" (Ontario Ministry of Education, 2008, p. 8), does PCS in fact support educators' ability to provide more effective learning opportunities for diverse groups of students: for example, are teachers better able to assess and respond effectively to a wider range of student needs in smaller classes?

Teachers' skills and experiences influence their ability to capitalize on the opportunities for teaching in small classes. Given that teacher effectiveness is a critical factor in student learning (Hopkins, 1998, February 23; Jepsen & Rivkin, 2002; Ogawa, Huston, & Stine, 1999), simply slotting any available teacher into a vacant classroom may not be very effective. Board- and school-level practices of assigning teachers to schools and classes influence whether teachers can develop relationships and deep knowledge of particular communities and kinds of student learning needs, or whether teachers continually revolve in and out of assignments and lose out on these informal professional learning opportunities.

The adequacy of working conditions for teaching, including instructional resources, classroom space, adequate time for planning and assessment, and opportunities to work collaboratively with other educators, also makes a significant difference in teaching quality (Bascia, 2001; Leithwood, 2006; Quartz, Barraza-Lyons, & Thomas, 2005; Yee, 1988). The literature suggests that teachers' professional learning and working conditions must be taken into account during PCS implementation. How and to what extent might PCS affect teacher quality? Given that teachers do different work under different conditions, even in the same school (Siskin, 1994; Muncey & McQuillan, 1996), PCS could affect teacher quality differently across primary, junior, and intermediate grades and with different student populations.

Schools also differ in important ways. Ontario is in the midst of a multi-year process of school closures and amalgamations in response to a period of declining enrolment, and schools vary markedly. Size and program complexity, socio-economic characteristics of the surrounding community, teacher strengths, and leadership all shape the quality and nature of the educational program (Bascia, 1994, 1996; McLaughlin, 1993; Metz, 1990). A new initiative like PCS might work differently in different school contexts.

Finally, *school boards* vary. Ontario's 72 boards reflect a wide range of sizes (in terms of geographic distance and density, number of schools and enrolments), local circumstances (such as labour markets and demographics) and priorities. These characteristics could influence the nature of PCS implementation.

In this study, the data on student experiences, teachers' perceptions, school features and school board characteristics are disaggregated in order to provide a clearer picture of the effects of PCS in different circumstances and on different populations. The careful selection of diverse school boards and schools for the study allows for this differentiation, as do analyses that take into account possible variations in student population, grade level and class composition.

Resource capacity

Understanding issues of *capacity* is fundamental to comprehending what impact an initiative like class size reduction might have in classrooms, schools and school systems (Bascia, 1996; Elmore, 1977; Oakes, 1989). As used here, *capacity* includes human resources such as knowledge, skills, and specialized expertise, and opportunities for educators to learn and time to develop competence; the availability of fiscal resources to ensure sufficient and quality

instructional resources and space; the appropriate authority and flexibility needed to use them appropriately; and the system “smarts” to attend to how all these factors interact. The “same” initiative can be highly positive, have serious unintended consequences, or make very little difference across settings, depending on local capacity.

Class size reduction initiatives often fail to take into account the necessary funds to build or rent new facilities and buy furniture to make them workable, provide heat and electricity, and ensure adequate custodial and clerical services (McRobbie, Finn, & Harman, 1998). California’s class size reduction initiative is a vivid illustration of what happens when issues of capacity—the availability of classrooms, but also of qualified teachers—are not taken into account (Stecher et al., 2001). The California experience with teachers moving out of schools serving poor and minority students also suggests that capacity, in the form of quality working conditions, matters in attracting and retaining teachers.

Schools and school boards may operate with different levels of resource capacity, despite the presence of governmental funding practices that ensure uniform resources per pupil. Community socio-economic status may shape parents’ fund-raising ability and involvement in a given school. School board characteristics such as number of students enrolled, number of schools, and geographic concentration lead to differences in opportunities and constraints for resource allocation. The diversity and urgency of students’ learning needs and the range of discrete educational programs operating within a system or school are also important factors that influence resource capacity (Bascia, 1996).

Without a full picture of the resources needed to implement class size reduction, schools and school systems may find that this innovation’s demands for resources has unintended and negative consequences for other educational programs from which resources may be drawn inadvertently. This has been noted in research on cases where an innovation has been introduced that, like primary class size reduction, targets part but not all of a school’s students and teachers. In these circumstances, the redirection of scarce funds and human resources to the new program, and the greater attention paid to it by administrators, may actually result in declines in the quality of conditions for teaching and learning elsewhere in those schools (Bascia, 1994; Muncey & McQuillan, 1996) and school boards (Lortie, 1975).

Class size does not influence student achievement directly; it is what teachers and students do in smaller classes that matters (Folger, 1989; Graue et al., 2005; Molnar et al., 1999; Zahorik, 1999). Shapson, Wright, Eason, and Fitzgerald’s study of class sizes in Toronto (1980) showed that when teachers did not change their teaching strategies in small classes, students in small classes did not achieve better academic outcomes than their counterparts in large classes. Research on California’s initiative, as well as on a pilot program in Edmonton, demonstrate the powerful effects of teachers’ opportunities for professional learning in improving student achievement (Achilles, 2003; Darling-Hammond, 2000; Graue et al., 2005; Hanushek, 1999; Milton, 2006; Pannozzo & Finn, 2001; Stecher et al., 2001).

The research is clear that it takes developmental time for teachers to change their practice and that professional learning opportunities matter. Research on teachers’ professional learning suggests that deep and responsive teacher learning occurs when teachers have opportunities to solve problems of practice with other teachers they trust and with whom they share a sense of purpose over a period of time (Cochran-Smith & Lytle, 1992; Day & Harris, 2003; Little, 1993). This is the original intent behind professional learning communities. Thus, class size reduction initiatives intended to improve the quality of teaching must ensure, and not present obstacles to, this kind of collegial interaction.

Teachers’ skills and experience influence their ability to capitalize on the opportunities for teaching in small classes. If, as some of the research suggests, teacher effectiveness is a critical

factor in student learning (Hopkins, 1998, February 23; Jepsen & Rivkin, 2002; Ogawa et al., 1999), simply slotting any teacher into a vacant classroom may not be very effective. Board- and school-level practices of assigning teachers to schools and classes influence whether teachers are able to develop relationships and deep knowledge of particular communities and kinds of student learning needs, or whether teachers continually revolve in and out of assignments and lose out on these informal professional learning opportunities. To some extent, then, teacher development depends on other kinds of capacity—resource capacity to ensure sustained employment, and leadership capacity to facilitate thoughtful placement of teachers in school, grade and program settings over time.

Other kinds of capacity also are important to the implementation of initiatives such as class size reduction. One domain might be characterized as “leadership capacity.” Crucial dimensions of leadership capacity include, for example, the possession of organizational skills; the ability to “think outside the box” and to make good use of opportunities and requirements that arise; the ability to maintain a sense of substantive direction (sometimes defined as “vision”) in the face of a changing environment and to be able to discriminate between means and ends; and the ability to work productively with others.

Oakes (1989) has noted that educational policy effects interact with one another, in ways that can build, enhance or undermine capacity. How does Ontario’s PCS initiative affect, and how is it affected by, human and resource capacity across the province?

Policy coherence

Policy coherence is the ability to recognize the interactive and inter-connected nature of many aspects of educational practice, across settings and levels. Policy coherence requires the understanding that policy initiatives do not occur on the ground as discrete events, but interact with other initiatives in operation at the same time *as well as* with policy effects from the past (Bascia, 2001). It recognizes that initiatives work their ways into and through many different system levels and settings and is willing to trade control for encouraging the development of local capacity to make and carry out informed decisions that make sense in different settings.

Policy coherence is sometimes understood as synonymous with the concept of “alignment,” but it is more. Alignment typically emphasizes compliance with overarching system goals across hierarchical levels: for example, that teachers, principals and school boards are all working toward the same purposes, rather than undermining or cancelling each other out, and ensuring efficient resource management. Policy coherence may well encompass this notion of alignment, but coherence moves the emphasis away from issues of governance and accountability and toward deeper understandings of the dynamic relationships between teaching, learning, and other organizational processes. Expecting simple policy changes to have dramatic and intended effects on educational practice is antithetical to policy coherence in that it does not take into account the actual interactions that comprise educational practice.

Policy coherence also has a substantive aspect: it balances needs for a variety of program initiatives to respond to different needs and circumstances at the same time that it provides meaningful clarity of overall purpose. Policy coherence is, in a sense, leadership capacity at the system level to diagnose, prescribe and implement effective solutions to educational problems on an ongoing basis.

To what extent does PCS contribute to and/or benefit from policy coherence? This question—along with attention to issues of disaggregation and capacity—is the analytic underpinning for this study.

CHAPTER 3: Policy context and implementation strategies

This chapter describes the policy context for Ontario's primary class size reduction initiative, drawing on interviews with Ministry of Education officials and staff as well as documentary evidence; it characterizes the setting in which the idea of PCS emerged and the strategies the provincial government employed toward implementation; and it situates PCS in the context of other educational initiatives undertaken during the same general time period.

Ontario's educational system is large and complex. There were 2.1 million students in elementary and secondary education in 2006-07, of whom about 4% were French-language and the rest English-language. The 4,903 schools in the province are divided into four different school board systems, by language (French/English) and historical religious roots (Catholic and public). The 72 school boards are distributed in the following way: 31 English public boards, 4 French public boards, 29 English Catholic boards and 8 French Catholic boards. Boards range in size from one very large urban board in Toronto (accounting for about 12% of the total student population in the province) to 44 small school boards (with fewer than 22,000 students) in primarily rural areas (see Table 4-1 below). All of the French-language school boards (both public and Catholic) are in the smallest size category. In 2006-07, the elementary system included 3,980 schools, 1.4 million students, and 77,462 elementary teachers. Most elementary schools cover primary (Junior Kindergarten to Grade 3) and junior years (Grades 4-6); some schools also include the intermediate years (Grades 7 and 8).

The idea of primary class size reduction

Primary class size reduction was one of the Liberal Party's provincial campaign promises in 2003. Out of a list of fifty priorities stated in its election platform to improve education across the province, primary class size reduction was mentioned second, just after "improving students' academic achievement" and just before emphasizing reading, writing and mathematics. Linked at least nominally with these other initiatives, primary class size reduction was presented as reinforcing a concerted effort to make improving public education a high priority.

According to officials close to the Premier and Ministry of Education leadership, primary class size reduction was viewed as a promising campaign strategy. As discussed in Chapter 2, research evidence of widespread and enduring benefits has been widely publicized in educational circles. The Liberal Party's campaign platform asserted that "students learn more and perform better in smaller classes. Students who begin their education in small classes are less likely to drop out, more likely to graduate on time, and more likely to take challenging courses in high school" (Ontario Ministry of Education, 2008, p. 4). Unlike more subtle or population-specific programs, once implemented, class size reduction would be readily noticeable to parents and educators across the province. It would signal the government's follow-through on its commitment to public education. Class size reduction was an obvious way for a new provincial government under the Liberal Party to distinguish itself from the previous provincial government under the Progressive Conservative Party of Ontario. The previous provincial government had been viewed by educators and parents as overtly antagonistic to public education, and had put in place a primary class size "expectation" that had been criticized by parent and teacher advocacy groups as ineffective (Blackett, 1998; Ontario English Catholic Teachers Association, 1999).

In fact, primary class size reduction had been a provincial government priority since 1988. Under the then-governing Liberal Party, the provincial government instituted an incentive-based class size reduction policy for Grades 1 and 2, with benchmark targets to reduce class size averages at the school board from over 28 in 1987 to 20 in 1990. Subsequent Ontario

governments (under the New Democratic Party and then the Progressive Conservative Party) persisted with this goal until the late 1990s (Ontario Ministry of Education 1988, 1989, 1990, 1992, 1993, 1994, 1995, 1996, 1997), when the Progressive Conservative government established class sizes of 25 for primary grades and 22 for secondary grades, again based on school board averages. In the 2003-04 school year, just prior to the Liberals' coming to power in Ontario and the initiation of primary class size reduction, 80% of the province's school boards had *average* primary class sizes of fewer than 25 students. By identifying a new, lower class size target and the goal of meeting that number in every school board ("the hard cap"), the new Liberal Government of Ontario demonstrated its intention to go further and to succeed with a strategy that had previously had little obvious success.

New infrastructure

Provincial education policies commonly emerge from the political or professional identification of issues and priorities, considered discussions of options among public servants and consultation with stakeholders. Primary class size reduction sprang into being as a specific, well-defined election promise that immediately became a provincial government objective. Situating the new policy in relation to other provincial activities and priorities then followed. Reducing primary class size may have been perceived as a simple and obvious idea in its inception, but, according to officials, the Ministry of Education itself previously had not been in the business of "making things happen on the ground," and implementation proved to be a significant undertaking at the provincial government level as well as throughout the educational system.

There was no obvious unit within the ministry in which to place PCS because it required the involvement of several different types of activities. In order to begin the work of establishing parameters and routines around reducing primary class size, Ministry of Education staff needed to consider whole new funding categories, develop new databases, draw disparate data sources together, make existing databases more publicly accessible and gather information that had not previously been gathered. In the process of beginning to work with school boards on primary class size reduction, ministry staff discovered that school boards did not all have the same planning and tracking practices, and this further complicated the task. The consequences of these enhancements on school boards and schools are worth paying attention to, even beyond the implementation of PCS, because of how much further they go to make local spending decisions visible to the Ministry of Education, and thus ensure compliance with the provincial government's requirements.

The Ministry of Education considered two possible funding models: high optimization and moderate optimization. High optimization—providing enough teachers to ensure that every primary class in the province stood at 20 or fewer students—proved hugely expensive. Moderate optimization—providing enough teachers to ensure that nearly every primary class stood at 20 or fewer students, with some contingencies such as combined grades—was still very costly but conceivable.

Allocation formulas existed for both operating and capital funding, as did extensive databases. These served as "valuable infrastructure" for policy-makers (Naylor, 2007). In order to make the new funding more visible, however, the Ministry of Education created a new grant. Money for new teachers was increased by \$90 million per year.

In the process, however, ministry officials ascertained that some boards had not been doing routine planning for facility use and had little knowledge of what spaces were utilized for what purposes in schools. The ministry hired two staff to evaluate the need for space to accommodate primary class size reduction in school boards. In collaboration with boards, the

ministry reviewed space on a school by school basis to determine capital funding requirements.

Support and pressure

Unlike California's Class Size Reduction strategy, which attempted full implementation in a very short time frame, Ontario's PCS rolled out over a four-year period. Monies for hiring new teachers and buildings or otherwise securing new classroom space were made available incrementally. Funds for new teachers were released in order to support 1,200 teachers per year between 2004-05 and 2007-08. The incremental approach was intended to "ensure that school boards did not experience teacher shortages or face difficulties recruiting qualified teachers, and to allow time for planning even while ensuring that primary class sizes would visibly drop over time" (Naylor, 2007, p. 11). For the 2005-06 school year, recognizing that funding for teachers could be more quickly utilized than the creation of permanent new classrooms, the ministry informed school boards that they were expected to hire additional primary teachers but, if they lacked sufficient space, they could deploy them in a variety of ways, such as in team teaching or smaller groups at different times of the school day. The ministry also committed to funding more specialist elementary teachers—teachers with rotating assignments in literacy, numeracy, and other content areas. When actual class size numbers were reported that fall, ministry staff ascertained that some new teacher monies had been used to reduce class sizes in grades other than primary. The ministry created a Class Size Tracker that tracks actual class sizes by grade and school for every Ontario school that includes primary (K-3) grades for each year. Putting the Class Tracker online and making it publicly accessible, according to a senior official, was one "powerful" way to encourage school board compliance since parents and the public would have access to how well boards were doing in reaching provincial targets. In 2006, the Ministry of Education issued memoranda to school boards requiring 100% of all primary classes be organized around 23 or fewer students for the 2006-07 school year and reminding them that a "hard cap" of at least 90% of primary classes to be organized at 20 or less would be in effect in 2007-08.

Funding for classrooms was released in 2005-06. Ministry of Education staff recognized that most projects would require additions and renovations, which require proportionally more administrative time than new, full school construction projects: a one-to-two-year time lag required to move from identifying the need for new classroom space through local approvals to the actual manifestation of those classrooms.

A small number of school boards did not reach compliance by the 2007-08 target date. "Coaches" funded by the ministry spent time with board staff during the summer between school sessions and made suggestions about where funds could be reallocated to meet compliance. The intention behind these strategies was to help school boards continue to make progress towards full implementation.

Synergies and possible coherence

The primary class size reduction initiative was only one of a number of strategies identified in the Liberal Party's campaign platforms in 2003 and 2007 that were followed through during the Liberal government's first and second terms in office. A number of other initiatives have potential synergistic relationships with PCS and, consequently, must be taken into account when attempting to understand the impact of PCS on educational practice.

Labour relations

The government facilitated a set of framework discussions leading to four-year collective agreements in all of the province's school boards. These new agreements eliminated the "distraction" of frequent labour negotiations.

Instructional focus

The earliest group of strategies, under the direction of a newly formed Literacy and Numeracy Secretariat (LNS) within the Ministry of Education, focuses on increasing the capacity of teachers of primary (K-3) and junior (4-6) students to employ “high yield” instructional strategies in the areas of reading, writing and mathematics. Since 2004, LNS has created a wide variety of print and video resources for educators, presented regional professional learning sessions, has worked with individual schools and school boards on teacher training and school improvement planning. LNS understands its mandate as quite broad, extending its focus to provide support and materials for teachers to provide appropriate instruction for students with special education needs in 2005. It has developed resources for supporting the implementation of teaching strategies for English- and French-language learners from Kindergarten through Grade 6. From 2005-6 onwards, the Ontario Focused Intervention Partnership (OFIP) initiative provided intensive resources for elementary schools where students’ literacy and numeracy skills were low or showed no evidence of significant improvement. PCS could provide the conditions for teachers’ incorporation of LNS-supported teaching strategies, directly through the opportunities afforded by smaller numbers of students and more room per student and more indirectly by providing the conditions that enable ongoing professional learning.

LNS also has invested in several projects that focus on building district-wide and whole-school capacity to support higher student achievement. A School Effectiveness Framework, launched in 2007, outlines district and school-wide approaches to data analysis, improvement planning and the implementation of capacity-building strategies. “Schools on the Move” is a strategy to report on schools across the province that have made progress in increasing student achievement. A research initiative, “Leading and Learning,” collected data on successful leadership practices in schools facing challenging circumstances and then developed learning modules based on the themes emerging from the study. Professional learning opportunities were provided for leaders such as annual symposia and print and video resources that emphasize the development of professional learning communities. (See <http://www.edu.gov.on.ca/eng/> for descriptions of these initiatives.)

Politique d'aménagement linguistique (PAL)

The *Politique d'aménagement linguistique* (PAL) was first launched in 1994 as a working paper to address the assimilation of the Francophone population within the English-language context. In 2004, the provincial government presented a new version which aimed to promote French language and culture while supporting the improvement of student achievement and the retention of students in French-language schools. The PAL arises in the context of a long history of community-building and collectivity within the minority Francophone context which places a high priority on the pursuit of respect for minority language rights. Thus, French-language minority education involves a long-term process of strengthening a sense of collective belonging to the French-language school as a crossroads between the multiple identity affiliations of its population. The PAL highlights the importance of mobilizing local resources and registering individual linguistic and cultural identities toward a context-specific adaptation to community-based interests, needs and capacities, within broader community affiliations and identifications. The PAL intersects with literacy and numeracy and inclusive education policies in at least two of its mandates: to increase the capacity of schools and school boards to collaborate in a minority context to support student learning and identity formation; and to increase student competencies in written and oral communication. Similarly, the PAL reflects priorities similar to those expressed in PCS in its mandate to increase the capacity of the French-language school boards to attract and to retain Francophone students. By offering a more intimate, individualized learning environment, especially in the context of smaller classes in JK, SK and Grade 1, French-language schools were better able to ensure students'

smooth transition to a French-speaking environment through increased support for early language acquisition, particularly in Anglo-dominant or plurilingual contexts where preschool and early primary students had limited competency in French.

Special education

Enhancing support for students with special education needs has been a priority for the provincial government which has invested in a number of strategies, many intended to support students with special education needs in regular classes (see Ontario Ministry of Education, 2005a). Some of the major strategies include increasing support staff, including Education Assistants; providing funding so the Ontario Psychological Association could work with boards to reduce waiting times for student assessments, thus allowing more students' needs to be identified; funding for the Council of Ontario Directors of Education for professional learning and implementation with respect to literacy and numeracy instruction for students with special education needs, and expanding this work with a follow-up strategy that focuses on developing student profiles and linking instruction to assessments; and a range of supports to improve the learning environments for students with Autism Spectrum Disorders (ASD).

Primary class size reduction should ideally intersect nicely with these strategies in terms of the opportunities afforded by PCS to incorporate new teaching strategies appropriate for students identified as having special education needs.

Professional learning for teachers

Like primary class size reduction and a focus on improving students' achievement in literacy and numeracy, teachers' professional learning has been a consistent area of emphasis for the Ontario government. In addition to the focus on professional learning underlying the work of the Literacy and Numeracy Secretariat, there are several thrusts to this strategy: a New Teacher Induction Program (NTIP) in 2006; a revised teacher performance appraisal program for experienced teachers, called the Annual Learning Plan (ALP), in 2007; funding for school boards to develop and deliver professional learning activities; an increased number of annual professional activity days for teachers; and grants to groups such as teacher federations to support teacher professional learning. A set of characteristics for effective professional learning experiences, drawn from the research base as well as the experiences of provincial organizations that provide professional learning for their members, has been developed.

There are obvious potential intersections among PCS and some of the specific initiatives arising out of the provincial emphasis on teachers' professional learning. Induction programs and teacher performance appraisals could take into account the development and demonstration of teachers' effectiveness working in smaller classes. The characteristics for effective professional learning also seem germane. One in particular suggests that professional learning must be "goal-oriented" —that is, connected to improved student learning and connected to daily practice. Another suggests that professional learning must be "sustainable" —that is, it must progress over time and provide opportunities for practice and reflection. These characteristics for effective professional learning suggest that PCS might provide the opportunity for teachers to focus in an ongoing way on improving classroom practice, particularly if conditions for professional learning are supportive in schools and other educational settings.

Ontario leadership strategy

The Ontario Leadership Strategy (OLS) was developed to foster high quality leadership in schools and school boards across the province. Based on research and consultations held in the spring of 2008, the strategy has two goals: to attract the right people to the principalship and to help principals and vice-principals develop into effective instructional leaders. The implementation of the strategy focuses on partnership with key stakeholders, individual and organizational development, alignment across ministry and board initiatives, and communication and engagement strategies. Key elements of the strategy already well underway include mentoring for all principals and vice-principals in their first two years of practice, a provincial principal and vice-principal appraisal model being tried out by most boards, executive development for directors and supervisory officers, and expectations that boards will develop succession plans and leadership development strategies over the next three years. The Institute for Education Leadership (IEL), a partnership of leader associations at three levels (principal, superintendent, director) with the ministry, is in its third year of operation. The IEL provides workshops on the Ontario Leadership Framework (OLF) of effective leadership competencies and practices across the province.

The OLS has the potential to intersect with primary class size reduction in some mutually beneficial ways. Most directly, PCS provides a concrete opportunity for leadership development to be concerned with the instructional dimensions of leadership across a spectrum of activities, including interaction with teachers around classroom practices to understand the ways administrative activities such as planning, resource allocation and supporting teachers' professional learning influence the quality of conditions for teaching and learning.

Parental involvement

As noted earlier, underlying the current government's educational policies is the stated goal of increasing public confidence in and support for public education. The Ministry of Education has embarked upon a series of parental involvement initiatives that are taking place at the same time as the implementation of PCS. Responding to the report commissioned from the Parent Voice in Education Project in March 2005 (Ontario Ministry of Education, 2005c), the Ministry of Education articulated a parent involvement policy in December 2005. During the time of PCS implementation, the Parent Engagement Office: has overseen the distribution of Parents Reaching Out Grants to school councils, parent organizations and other non-profits, and school boards across the province; has convened the work of a Provincial Parent Board, an advisory panel of 20 parents from across the province; and has solicited reviews of research literature and analyses of exemplary professional practices from various jurisdictions to inform future policy decisions regarding parental involvement.

CHAPTER 4: Province-wide trends in PCS implementation

This chapter examines province-wide trends regarding the implementation of Ontario's primary class size reduction initiative by combining and analyzing data collected by the Ministry of Education between the 2004-05 and 2007-08 school years. This chapter relies on information provided by the Ministry of Education through several databases, including the Class Size Tracker, as well as the number of additional classroom spaces requested by school boards and the monies approved by the Ministry of Education.

Our analysis is broken down as follows:

- the provincial government's overall investment in PCS
- the actual increase in primary classes
- the increase in numbers of primary teachers
- the percentages of primary classes at 20 and under, and at 23 and under, over time
- average primary class size over time
- average junior and intermediate class sizes over time, and
- trends over time in the number of combined-grade classes

Specific analytic strategies were generated by members of the research team in consultation with Ministry of Education staff. In order to provide some understanding of the rate and nature of implementation across different kinds of boards, the analysis that follows acknowledges the following factors:

- *School board student population size* (ranging from boards over 64,000 students to those under 22,000), because scope and capacity may have different effects on the rate and distribution of additional teachers and classrooms;
- *School board geographical location and nature* (urban/Toronto, suburban Greater Toronto Area (GTA), southern Ontario urban/rural mix, southern Ontario rural, northern Ontario urban/rural mix and northern Ontario rural), because density and student population characteristics could affect implementation;
- *School board panel* (English public, French public, English Catholic, French Catholic), because these panels have had different resource bases historically and we might expect to see some enduring effects that influence implementation; and
- *School board student enrolment trends over the four-year period of 2004-05 to 2007-08* (expanding enrolment, stable enrolment, declining enrolment), because boards might face different kinds of challenges depending on the stability of student numbers.

School boards are not identified by name in this report because this is not an assessment of individual school board compliance. Instead, this chapter presents a broad but nuanced portrait of some interesting trends in the rate and speed of impact of the class size reduction initiative.

Enrolment in Ontario schools reached a plateau in the mid-1990s. The decline started in the primary grades (Kindergarten to Grade 3) in 1999, and has been moving through the system, hitting the junior grades (Grades 4 to 6) starting in 2002 and the intermediate grades (Grades 7 to 9) from 2007. Only a few urban and suburban school boards are experiencing increases in their enrolment. Table 4-1 below lists the number of school boards by category for board size determined by the Ministry of Education, based on student enrolment (thousands of students). A large proportion of boards, 44 out of a total of 72, are in the smallest size

category with fewer than 22,000 students. There are just eight boards in the largest category, with more than 64,000 students.

Table 4-1 describes changes in primary student enrolment between 2004-05 and 2007-08. We have created three categories of enrolment change: stable, increasing, and decreasing. “Stable” enrolment is where a board does not experience more than half a percentage point change in enrolment per year, between 2004-05 and 2007-08. That is, a board which does not have a cumulative change of more than plus or minus 1.5% over those three years is considered stable. Boards which have a cumulative change of more than 1.5% in these years are considered either increasing or decreasing.

Table 4-1. Enrolment Trends for Primary Students in Ontario, 2004-05 to 2007-08, By School Board Enrolment

Board Enrolment	Number of boards	Number increase/decrease in primary students	Percent increase/decrease in primary students	Number of boards increasing enrolment in primary	Number of boards stable enrolment in primary	Number of boards decreasing enrolment in primary
Over 64,000	8	-6,830	-2.82	2	1	5
38,000 - 64,000	8	-3,298	-3.26	1	2	5
22,000 - 38,000	12	-3,925	-4.58	1	0	11
Under 22,000	44	-6,084	-5.66	9	2	33
Total for Ontario	72	-20,138	-4.52	13	5	54

Overall primary student enrolment declined in Ontario by 4.5% from 2004-05 to 2007-08. Of the 72 boards, only 13 had increasing primary enrolment. Three of the largest boards (all urban/suburban boards in the Greater Toronto Area) and seven of the 12 French-language boards were increasing (three of the French public boards and four of the French Catholic boards—all of them among the smallest boards). The rate of increase for some of these small boards was very high: one increased as much as 27% over this period. There are just five boards which have enrolment that is considered stable, remaining roughly the same from 2003 to 2007. The remaining 54 school boards all have declining enrolment. The overall rate of decline is slightly smaller for the larger school boards and considerably larger for the smallest boards as a group.

While we cannot directly discern from these data the effects of declining enrolment on boards' efforts to reduce class size, we must recognize the simultaneity of the two factors. Discussion of the relationship between enrolment and PCS implementation will be covered more fully in Chapter 5. Briefly, in a school or district dealing with declining enrolment, it may be possible to allow for smaller classes with little change in arrangement of classes. Indeed, school boards with declining enrolment may find the PCS implementation helps to prevent schools from closing or teachers from being laid off. Conversely, school boards with increasing enrolment may be able to deal with smaller class sizes by allowing more room in planned new schools. However, this forecasting assumes that the changes in enrolment continue. Boards may be able to plan for a moment when they have class sizes at the appropriate level, but it will be difficult to sustain this level as enrolments continue to change (either increasing or decreasing). This is the challenge of trying to fix a moving target.

We also undertook an analysis of the size of schools in each school board. We took the number of elementary students in each board and divided it by the number of elementary schools, to give us an average school size. The mean for the province is 374 students per school, but the range goes from a high of 583 to a low of 84 students. There are four boards where the average size of elementary schools is over 500 students; these are all large English-

language boards in the south (an equal number of public and Catholic boards). There are ten boards which have an average elementary school size of fewer than 200 students; all of these are boards with small enrolments and large geographical areas, mostly in the north of the province. In this group there is an even mix of public and Catholic, and French-language and English-language boards.

The dimension of school size creates some differences among boards that might otherwise be considered similar. For instance, two English-language public boards in the south central part of the province, with about the same enrolment, have average school sizes of 352 and 444. What seems to differentiate these boards is the geographical area over which their students are spread. Where there is a concentration of students (for instance, an urban or suburban area), there is more likely to be a larger school size, whereas in rural areas, the schools are likely to be smaller. As later chapters will describe, school size and the geographical distribution of schools appear to have some implications for the effects of PCS on resource distribution.

Funding

How much funding has the government invested to support the primary class size initiative?

The PCS funding data set provides information for the following summary. These data reflect the budget calculations by the Ministry of Education. The ministry has allocated two types of funding to support the implementation of PCS: operating funding to pay for additional primary teachers, and capital funding for facilities. We discuss each of these in turn. While this report focuses only on the funding provided for PCS, some of the challenges for personnel and facilities may have to be addressed by funding from other budget “envelopes” (such as transportation, or school supplies). There is likely to be a ripple effect from the expansion of the numbers of primary classes which impacts other policies (such as the work of the Literacy and Numeracy Secretariat) or even other jurisdictions (for instance, municipalities need to rule on additions to local school sites).

Operating funding

In order to assess the needs for operating funding as a result of PCS, the ministry calculated the number of new teachers required in order to accommodate new primary classes as a result of the policy. This funding was decided by the Ministry of Education as a per-pupil allocation, taking into account enrolment projections for schools in each area as well as the expected impact of reducing the primary class size to 20 students. This funding was allocated to schools across four years, from 2004-05 to 2007-08, as shown in Table 4-2.

Table 4-2. PCS Funding for Teachers, 2004-05 to 2007-08, By School Board Enrolment

Board Enrolment	2004-05 (\$ millions)	2005-06 (\$ millions)	2006-07 (\$ millions)	2007-08 (\$ millions)	Total 2004-08 (\$ millions)	Average total funding per board (\$ millions)
Over 64,000	\$40.3	\$41.3	\$44.2	\$59.1	\$184.8	\$23.1
38,000 - 64,000	\$16.8	\$17.2	\$18.2	\$24.5	\$76.7	\$9.6
22,000 - 38,000	\$14.2	\$14.4	\$15.4	\$20.1	\$64.2	\$5.3
Under 22,000	\$17.8	\$17.9	\$18.8	\$24.9	\$79.6	\$1.8
Total for Ontario	\$89.1	\$90.9	\$96.6	\$128.6	\$405.2	\$5.6

Of the \$405.2 million allocated to hire new teachers to implement PCS, almost half (\$184.8 million) went to the eight largest school boards. While the average allocation per board was \$5.6 million across the province, the average for these largest school boards was \$23.1 million. The 44 boards in the smallest category averaged \$1.8 million each over the four years of implementation of the PCS policy. The difference in allocation is a consequence of differences in enrolment. Table 4-3 shows the number of teachers this funding represented.

Table 4-3. Average Allocation of New Classes and Funding, By School Board Enrolment

Board Enrolment	Number of boards	Total number of new teacher positions approved	Average number of funded teacher positions per board	Total funding for teachers (\$ millions)	Average teacher funding allocated per board (\$ millions)
Over 64,000	8	2,225.8	278.2	\$184.8	\$23.1
38,000 - 64,000	8	975.8	122.0	\$76.7	\$9.6
22,000 - 38,000	12	814.4	67.9	\$64.2	\$5.3
Under 22,000	44	1,023.1	23.2	\$79.6	\$1.8
Total for Ontario	72	5,039.1	70.0	\$405.2	\$5.6

The number of teachers expected to be funded by the ministry was calculated for each board, based on the average teacher salary for that board. Table 4-3 shows the same large discrepancy between the large and small school boards as we saw in Table 4-2. When budgeting for the costs of this policy, the ministry planned to spend a total of \$386 million, to pay for 4800 new teacher positions (Naylor, 2007). As of 2008, however, indicates the total of \$405.2 million to pay for 5039 new teacher positions.

The average number of new teachers allocated to each school board is a function of the enrolment of the board. Therefore, boards with larger enrolments receive more funding than boards with smaller enrolments. There were 74,298 teachers in the elementary system in 2005-06; the addition of over 5,000 teacher positions as a result of the PCS policy represents a substantial increase to the teacher population. This allocation of funding for 5,039 new teacher positions is not, however, equivalent to an increase in the total number of teachers in the province, as declining enrolment over the same years has reduced demand for teachers in some schools.

In a similar way, the increased number of teachers is not equivalent to an increase in the numbers of classrooms, as many of the "new" classrooms were accommodated in existing spaces that may have had other uses in the school, such as child care centres and resource rooms. It is also important to realize that the increased number of new teacher positions does not mean that these were all people newly hired to the board; new classes might have been staffed by teachers already working in the board in other capacities; boards may also have been able to retain teachers who would otherwise have been made redundant.

Reflecting large variations in school board enrolment,, there is an equally large range in the funding being provided for school boards to reduce class size. If the data are displayed by geographic characteristics, we get an even clearer picture of differences in the allocation of funding, as demonstrated in Table 4-4.

Table 4-4. Distribution of New Teacher Allocations and Funding to School Boards,
By Region & Urban/Rural/Suburban Divide

	Number of boards	Total number of new teacher positions funded	Average number of new funded teachers per board	Total funding (\$ millions)	Average funding allocated per board (\$ millions)
Urban/Suburban (GTA)	10	2255.1	225.5	\$187.5	\$18.7
S. Ont. Rural/Urban	30	2169.6	72.3	\$169.1	\$5.6
S. Ont. Rural	10	323.4	32.3	\$25.7	\$2.6
N. Ont. Rural/Urban	15	238.7	15.9	\$18.9	\$1.3
N. Ontario Rural	7	52.2	7.5	\$4.0	\$0.6
Total for Ontario	72	5039.1	70.0	\$405.2	\$5.6

Table 4-4 makes it clear that the allocation of new teacher positions centred on the large urban areas in the south of the province—in fact, if these figures were superimposed on a provincial map, there would be clear concentric ripples out from Toronto (but not including Toronto Public or Catholic school boards themselves), with less funding the further away a school board is situated. This is a function of enrolment. There is a direct link between the number of teaching positions and enrolment and a link between enrolment and geographic location.

In financial terms, the school board with the largest dollar allocation is budgeted to receive \$54.3 million, while at the other end of the scale, there are three boards that are receiving funding for just two or three new teachers through this initiative. The average funding per board covers a wide range across the different panels, as shown in Table 4-5.

Table 4-5. Distribution of New Teacher Allocations and Funding to School Boards, By Sector

	Number of boards	Total Elementary Enrolment	Total number of new teacher positions funded	Average number of new teacher positions per board	Total funding (\$ millions)	Average teacher funding allocated per board (\$ millions)
English Public	31	828,689	3,319.1	107.1	\$270.3	\$8.7
French Public	4	14,120	66.0	16.5	\$5.1	\$1.3
Total Public	35	842,809	3,385.1	96.7	\$275.5	\$7.9
English Catholic	29	360,472	1,434.8	49.5	\$113.6	\$3.9
French Catholic	8	45,046	219.2	27.4	\$16.2	\$2.0
Total Catholic	37	405,518	1,654.0	44.7	\$129.9	\$3.5
Total English	60	1,289,160	4,753.9	79.2	\$384.0	\$6.4
Total French	12	59,166	285.2	23.8	\$21.3	\$1.8
Total for Ontario	72	1,248,327	5039.1	70.0	\$405.2	\$5.6

Table 4-5 shows that more new teacher positions per board are going to the English public boards which is consistent with enrolment.

Capital funding

A second source of funding for PCS was capital funding to cover the costs of new classrooms required as a result of the policy. As Chapter 3 revealed, the Ministry of Education undertook an audit of facilities in all schools in the province to establish a benchmark for space available for classes, and then asked each school and school board to develop a list of requests for additional space to house primary classes. Based on assumptions about enrolment growth or decline and the impact of PCS, each school and board developed projections for their space needs and presented a request to the government for funding. After a review of the requests and some adjustments, the government approved funding for a designated number of classrooms based on a calculation of 23 students per class. This funding was considered a “one-off” grant to meet the needs of the policy, and could be spent at any time during PCS implementation. Table 4-6 below shows the allocation of the \$716.2 million for capital funding and its distribution by enrolment of school board.

Table 4-6. Capital Funding for PCS, By School Board Enrolment

Board Enrolment	PCS space needs (numbers of students)	PCS space needs (numbers of classrooms)	PCS capital funding (\$ millions)	Average capital funding per board (\$ millions)
Over 64,000	15,157	659	\$241.0	\$30.1
38,000 – 64,000	11,638	506	\$185.9	\$23.2
22,000 – 38,000	4,968	216	\$78.0	\$6.5
Under 22,000	12,995	565	\$211.2	\$4.8
Total for Ontario	44,758	1,946	\$716.2	\$9.9

The ministry calculated that schools would need approximately 1,950 new classrooms. The total amount to be allocated for capital funding was \$716.2 million. In interpreting these data, it is important to recognize that funding for new primary classrooms (either as new construction or additional portable units) was provided on the basis of 23 students in each class. This was described by the ministry as “round[ing] up to classroom units of 23 pupils and typically added in groups of 2, 4 or 6 to represent the way either portables or additions tend to be planned for in schools” (Naylor, 2007, p. 7). This put additional pressure on schools to maximize class size within the limits of this policy—to set class size as much as possible at 20 students and not fewer.

As of October 20, 2008, school boards had reported that they had spent approximately \$451 million of the \$716 million the ministry had allocated for PCS capital funding. There was a structural lag for this funding: the allocation of capital funding occurred later than the allocation for new teacher positions. In the early years of PCS implementation, boards were more likely to meet their immediate needs by moving existing portable classrooms or by leasing or purchasing additional portables. School boards are expected to continue spending their remaining PCS capital funding allocation beyond the four years of PCS implementation.

There is a difference between the number of teaching positions funded and the number of new classrooms funded. The number of teacher positions represents the additional classes required as a result of capping primary class size. Of the 5,039 classes being funded, however, about 1,950 classrooms are receiving capital funding. This suggests that the ministry ascertained that there was considerable excess capacity in Ontario schools, allowing about 60% of the new classes to be accommodated in existing facilities. Some of this reflects the reallocation of spaces that had been used for other purposes. The ministry has stated that their approach to capital allocation was to prevent the loss of physical resource and special education classrooms. Administrators in a French-language board told us, however, that preschool programs that had been placed in schools in order to attract students early to the French-language system were not considered a necessity, and preschool classrooms were deemed to be available for use as primary classrooms. Classrooms larger than the standard size used in most Ontario boards could accommodate combined grades classes, and allow for more use of space for storage and for specialist purposes, such as language rooms, music rooms or computer labs. This required knocking down walls and combining two existing classrooms into three new classrooms.

Table 4-7 below provides information about the investment in what the ministry refers to as “non-permanent classrooms”—that is, portables, portapaks (clusters of four, six or eight classrooms built with a corridor between them), and other “relocatable classroom modules” (RCM).

Table 4-7. Changes in Non-Permanent Elementary Classrooms at Ontario School Boards, 2002-03 to 2007-08

School year	Portables - elementary	Portapak - elementary	RCM non-permanent - elementary	Total non-permanent elementary classrooms
2002-03	5,771	1,470	1,045	8,286
2003-04	5,559	1,400	963	7,922
2004-05	5,469	1,294	990	7,753
2005-06	5,031	1,344	1,020	7,395
2006-07	5,145	1,336	980	7,461
2007-08	5,270	1,339	872	7,481
# Change from 2002-03 to 07-08	-626	-134	-65	-825
% Change from 2002-03 to 07-08	-10.8%	-9.1%	-6.2%	-10.0%
# Change from 2005-06 to 07-08	239	-5	-148	-86
% Change from 2005-06 to 07-08	4.75%	-0.4%	-14.5%	1.2%

Table 4-7 shows the trend towards reducing the number of non-permanent classrooms in elementary schools between 2002-03 and 2007-08. This likely reflects the overall decline in enrolment during these years, as school boards are more likely to remove portables before they close schools. The vast majority of non-permanent classrooms were portables (5,270 or 70.4% of the 7,481 total non-permanent classrooms in 2007), with portapaks representing 18.0% of the total. The remaining 872 non-permanent classrooms in 2007 were removable classroom modules, or RCMs; these are technically non-permanent but are built to look like additions to the school building.

Overall, there was a 10.0% decline in the numbers of these non-permanent structures in Ontario elementary schools between 2002 and 2007. The decline, however, masks a change in the trend of the past two years. The numbers of portables reached a low in 2005 and in the following two years increased by 4.5%. The change in portapaks reached a low in 2004, and varied only slightly in the following three years. The number of RCMs increased in 2005 but then declined quite substantially since then. While the overall number of non-permanent structures declined by 10% in these five years, the number has grown since 2005 across all three types of non-permanent structures by 1.2%. We heard in our interviews about how the capital funding did not flow from the government immediately, possibly because it took some time for schools and boards to develop plans and to order RCMs from suppliers. It was not until the third year of PCS implementation (2006-07) that investments in capital structures

started to be made in the eight site-visit school boards, so the changes illustrated here in 2006 and 2007 appear realistic.

We were unable to get data on the rates of change in portable use in each school board, so we were unable to track the anecdotal information which came from our interviews about the challenges of portable use (reported in Chapter 5). The data we have identifies the small northern school boards as the least likely to use any non-permanent structures.

In summary, the ministry has allocated \$716.2 million for capital funding, and \$405.2 million for operating funding for salaries for new teachers during the four years of PCS implementation. While the capital funding is finite, the operating funding will continue on an annual basis as part of regular funding for teacher positions.

Changes in numbers of primary classes and primary teachers

How many additional primary classes have been added?

How many additional primary teachers have been added?

The Ministry of Education asks each elementary school to fill in a web-based form by October 31st each year, to reflect the number and size of all classes on that day. It is important to note that this does not include English as a Second Language (ESL) classes, special education classes, music classes, or any other designation aside from full-time-grade classrooms. It is also important to recognize that these data provide momentary snapshots and do not reflect any changes in class enrollments over the course of the school year. Table 4-8 presents the distribution of primary classes by grade over the past three years for the entire province. The first year in the table, 2003-04, represents a baseline, before PCS implementation. Tinted rows represent classes with two or more grades combined. This table excludes combined primary classes with Grade 4 as one level being taught (see Table 4-9).

Table 4-8. Numbers of Primary Classes, 2003-04 to 2007-08, By Grade

	2003-04	2004-05	2005-06	2006-07	2007-08	Number increase or decrease
Jr. Kindergarten	3114	3056	3154	3040	2714	-400
Sr. Kindergarten	3388	3388	3410	3296	2848	-540
JK/SK Combined	5334	5583	5784	6591	7474	2140
Grade 1	5212	5452	5577	5509	5601	389
SK/Grade 1 combined	131	111	87	140	214	83
Grade 2	4512	4587	4723	4748	4409	-103
Grade 1/2 Combined	1735	1751	1718	1921	2450	715
Grade 3	4746	4877	4892	5151	4874	128
Grade 2/3 combined	1447	1380	1426	1709	2206	759
Grades 1-3 Combined	29	28	31	41	19	-10
JK – 1 Combined	57	49	44	33	49	-8
JK – 2 Combined	8	10	11	9	10	2
JK – 3 Combined	6	6	6	6	8	2
SK – 2 Combined	4	3	4	6	6	2
SK – 3 Combined	3	1	0	2	0	-3
Total	29,726	30,282	30,867	32,202	32,882	3,156

The overall number of primary classes in Ontario had increased, rising by 3,156 classes, or 10.6%, between 2003 and 2007. Most of that increase has taken place since 2005, the second year of PCS implementation. The numbers have been increasing only marginally in Grade 1 and Grade 3 single-grade classes. Single-grade Kindergarten and Grade 2 classes have declined substantially. The numbers of combined-grade classes at most levels have been increasing, particularly at the Kindergarten level (Junior/Senior Kindergarten combined grades had the highest growth of any of the grades, accounting for 60% of the total increase). The numbers of combined classes with more than two grade levels have shown very low levels of change, with no overall trend. The most dramatic trend from this table appears to be the increase in combined grades at all primary grade levels, particularly JK/SK. There is a further discussion of the phenomenon of combined grades later in this chapter.

Before 2007, the ministry counted Grade 3 students in a Grade 3-4 combined grade as part of the count of primary classes. In 2007, however, the ministry changed the designation to indicate that all combined grades which include any junior grade would be removed from the calculation of primary classes. Such classes are counted as junior classes, as of 2007-08. Table 4-9 below presents the numbers of Grade 3-4 combined grades from 2003-04 to 2007-08.

Table 4-9. Grade 3 and 4 Combined Classes, 2003-04 to 2007-08

	2003-04	2004-05	2005-06	2006-07	2007-08	Number increase or decrease
Grade 3/4 combined	1192	1048	1029	1042	1620	428

We can see that the numbers declined from 2003-04 to 2005-06, increased slightly in 2006, and then increased almost 60% in 2007-08. The net change in the number of combined 3-4 classes is an increase of 428.

It appears that there is an administrative cause of this anomaly. When the ministry announced that Grade 3-4 combined classes would not be counted as part of the PCS policy in 2007, schools and school boards were free to use 3-4 classes to allocate extra Grade 3 students without affecting the calculations for primary class size. The ministry has capped Grade 3-4 combined classes at a maximum of 23 students. These classes do not count in the 10% of classes allowed to have more than 20 students.

Table 4-10. Numbers of Students in Grade 3-4 Combined Grades, 2002-03 to 2007-08

	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	Number increase or decrease
Number of Gr.3 students in 3-4 combined grades	14,309	14,260	11,903	11,506	10,607	16,304	1995
Number of Gr.4 students in 3-4 combined grades	14,336	14,713	12,614	12,046	11,987	17,879	3543
Number of Special Ed students in 3-4 combined grades	108	49	31	0	0	0	-108
Total students in 3-4 combined grades	28,753	29,022	24,548	23,552	22,594	34,183	5430

Table 4-10 shows that there has been a substantial increase in the number of children in Grade 3-4 combined classes, but the distribution between Grade 3 children and Grade 4 children not has shifted.

The overall increase in the number of primary classes differs according to board enrolment. This may be affected by factors beyond PCS. As we noted, the increase in the number of primary classes reflected particularly large increases in Kindergarten. We are aware of the initiative by French-language boards to dedicate funding to the operation of Junior and Senior Kindergarten as full-time programs. We are also aware of the practice in schools to keep Kindergarten classes smaller than other elementary grades (as noted later in Table 4-15). These factors would affect the total number of classes. Table 4-11 presents actual numbers and percentage increase or decrease in the number of classes by school board according to board enrolment.

Table 4-11. Change in Number of All Primary Classes per Board, By School Board Enrolment

Board Enrolment	2003-04	2004-05	2005-06	2006-07	2007-08	Number increase 2003 to 2007	% increase 2003 to 2007
Over 64,000	12,966	13,254	13,456	14,282	14,593	1,627	12.5
38,000 - 64,000	5,618	5,747	5,888	6,125	6,286	668	11.9
22,000 - 38,000	4,807	4,919	5,061	5,189	5,249	442	9.2
Under 22,000	6,335	6,362	6,462	6,606	6,754	419	6.6

(Note: The data do not include combined-grade classes which include any junior level students.)

Table 4-11 indicates that, while school boards of all sizes have increasing numbers of primary classes, the smallest boards have not been increasing at the same rate. School boards with fewer than 22,000 students have increased numbers of classes by just 6.6%, in contrast to larger boards whose classes increased by 12.5%. This probably reflects the fact that the vast majority of small school boards are experiencing declining enrolments, while a number of the large boards are increasing their student numbers.

Table 4-12. Numbers of Elementary Teachers in Schools, 2000-01 to 2007-08
(on the Teacher Salary Grid, Full Time Equivalent)

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Number of Teachers	72,752	72,457	72,820	73,499	74,298	75,426	76,646	77,509

Table 4-12 presents the total number of elementary teachers employed as classroom teachers over the past eight years. The total number remained fairly steady between 2000-01 and 2001-02, but has increased in the past six years to 2007-08 (including the four years of PCS implementation). This represents an increase of 4,010 teachers since the year before PCS was implemented, 2003-04. It is not possible to say how much of that increase is attributable to PCS, but since this has taken place during a time of declining enrolment when one would expect the number of teachers to decline as well, it is likely that PCS has contributed significantly to this growth of teachers.

Table 4-13 presents our best estimate of the new teaching positions funded through PCS. The table shows that roughly 1,200 teaching positions were created in each of the four years of the implementation of PCS. The number varies slightly from year to year, with a significant increase to over 1,400 in the final year of PCS implementation. Overall, the ministry reports that 5,038 new teaching positions were created as a result of this policy. As noted earlier, this is slightly higher than the number originally budgeted in the planning for PCS; in 2004, the ministry expected to pay for 4,800 new teaching positions.

Table 4-13. Number of New Teacher Positions Funded by PCS, 2004-05 to 2007-08

Board Enrolment	2004-05	2005-06	2006-07	2007-08	Total 2004-05 to 2007-08
Over 64,000	552	544	550	580	2226
38,000 - 64,000	228	225	221	302	976
22,000 - 38,000	198	193	188	236	815
Under 22,000	250	242	227	303	1022
Total for all boards	1,228	1204	1185	1,421	5038

It is not possible to say categorically how many new teachers were hired under PCS, as the analysis is confounded by changing enrolment patterns which may have altered the demand for primary teachers independent of the PCS policy. The exact number may be a little more or less than this, but this estimate of 5,038 seems reasonable.

Proportion of primary classes by class size

What percent of primary classes is at 20 or under, and how has this changed over time?

What percent of primary classes are at 23 and under, and how has that changed over time?

These two questions refer to the shift in class sizes between 2003-04 and 2007-08. The target for PCS implementation is for 90% of all primary classes to be capped at 20 students and the remaining 10% at 21-23 students. Table 4-14 below gives us a summary for all primary classes in the province, divided into three categories: those that comply with the policy (having no more than 20 students per class, or having 21-23 students per class); and those that remain above 23 students per class.

Table 4-14. Percentage of Primary Classes by Class Size, 2003-04 to 2007-08

	2003-04	2004-05	2005-06	2006-07	2007-08
Percent primary classes 20 students or less	31	40	48	64	88
Percent primary classes 21-23 students	33	34	33	29	11
Percent primary classes over 23 students	36	26	19	6	<1

Table 4-14 shows that the number of primary classes less than or equal to 20 students has been increasing steadily, from 31% in 2003-04 to 88% in 2007-08. The number of classes with more than 23 students has been declining correspondingly over the same period. The number of classes with between 21 and 23 students remained constant over the first three years of the implementation; in the final year when the “hard cap” was imposed, the percentage of primary classes in this category dropped to 11%.

When examining the data in detail, we note that ten of the 72 school boards had not yet met the provincial government's targets, reporting 91 classes that have more than 23 students in 2007-08. This represented less than 1% of all primary classes in the province. The vast majority of these classes (66 or nearly 92%) that had not met the provincial targets were situated in just one of these school boards; the other nine school boards had between one and seven classes which had not yet reached the targets. Four of the non-compliant boards are in the English public sector, while five of them are English Catholic. Just one French Catholic

board has not met provincial targets; all the French Public boards are in compliance. Two of these boards are among the largest in the province by enrolment, while the others are small or medium sized. In general, the results in 2007-08 are almost exactly on target as specified by the Ministry of Education when PCS was launched.

Average class sizes for primary, junior and intermediate levels

What is the average primary class size, and how has that changed over time?

What is the average junior and intermediate class size, and how has that changed over time?

In this section, we consider average class sizes at primary, junior and intermediate levels and contrast both the sizes and the rates of change in these averages. The PCS policy did not specify *average* class size as the measure of success; instead, the measure was to be *actual* class size, as described above. Using averages to measure the success of a policy is a very different instrument, allowing for much more flexibility in implementation than the “hard cap” of 20 students used for primary classes. At the same time that PCS was being implemented, the Ministry of Education made efforts to control the *average* class size at the junior and intermediate levels. School boards were asked to establish the average class size at these levels and to ensure that these averages would not increase. The ministry also established a provincial norm for junior and intermediate classes at a maximum of 25 students.

Table 4-15 provides an overview of changes in average class size in the primary grades.

Table 4-15. Average Primary Class Size, 2003-04 to 2007-08

	2003-04	2004-05	2005-06	2006-07	2007-08
JK	19.33	18.64	18.57	17.69	17.43
JK-SK	21.19	20.39	20.00	18.84	18.43
SK	20.10	19.62	18.68	18.47	17.78
SK-1	21.77	21.03	20.95	19.75	18.65
Grade 1	22.08	21.09	20.41	19.57	18.90
Grade 1-2	22.26	21.23	20.74	19.73	18.88
Grade 2	23.11	22.12	21.39	20.14	19.14
Grade 2-3	23.49	22.51	21.60	20.22	19.27
Grade 3	24.01	23.09	22.24	20.60	19.28
Multi-grade combinations	23.10	22.28	21.68	20.34	15.40
Average for Ontario, JK-Gr.3	22.36	21.46	20.79	19.68	18.83

While there has been decline in the average primary class size overall, the change reflects higher starting levels in the higher primary grades. The averages for each of the primary grades is a decline of about 3 students per class over these years, while Grade 3 started at an average of 24.01, and fell to an average of 19.28, a reduction of almost 5 students per class.

Kindergarten classes were already smaller than required by the PCS policy in 2003, yet boards continued to reduce the size of these classes. The result maintains longstanding practices of Kindergarten classes being smaller than other primary-grade classes.

The rate of change increased during the three years of implementation of PCS. In 2005-06, the reduction in the average class size was slight—.67 of a student on average. The reduction in the two successive years was 1.11 students in 2006-07 and .82 of a student in 2007-08.

Among the different sectors in the province, the French-language school boards started with the lowest average primary class size. Indeed, seven of the 12 French-language boards already had average class sizes below 20 students in 2003, before PCS was implemented. The largest average primary class size in 2003 was a northern English Catholic board with an average primary class size of 23.4. Among all the school boards, just ten averaged primary classes of more than 22 students; these included two of the province's largest school boards, which affected the overall average for the province.

The overall provincial trend in average primary class size shown in Table 4-15 indicates that the average was reduced from 22.36 in 2003 to 18.83 in 2007; this represents a rate of change of 15.8% over the four years. Eleven school boards' rates of change were higher than this average; the highest rate of change was for a school board in the north that reduced its average primary class size by 21.3%. At the other end of the scale, there were two small northern boards that actually increased their average primary class sizes during this period; they had started with averages well below that needed for compliance. Of the 61 boards that reduced their average primary class size by less than 15%, 27 reduced it by less than 10%. From this analysis, we can see that some school boards had a more substantial task to reduce the size of primary classes than others.

It is interesting to see how much the phenomenon in the primary classes compares with changes in junior and intermediate classes. Table 4-16 provides this information.

Table 4-16. Average Primary, Junior and Intermediate Class Size, 2003-04 to 2007-08

	2003-04	2004-05	2005-06	2006-07	2007-08
All primary grades	22.36	21.46	20.79	19.68	18.83
All junior grades	25.47	25.21	24.88	24.76	24.57
All intermediate grades	25.91	25.75	25.59	25.51	25.75
Junior & intermediate grades	25.65	25.42	25.16	25.06	25.04
All elementary grades	24.14	23.60	23.13	22.48	22.07

The average junior and intermediate class has also declined somewhat, by just .61 of a student over the five years shown by these data. This may simply be a reflection of declining enrolment. Most of this change in class size has occurred at the junior level; there have been minor fluctuations at the intermediate level, but the net effect over the five years is not substantial. These average figures, however, mask some real variation in junior and especially intermediate classes in some schools (this phenomenon is taken up in Chapter 8).

When examining the details of these changes in each board, we were surprised to discover that the changes at the intermediate level are more erratic than these averages indicate. Almost half of the boards (35) have actually increased the size of their intermediate classes, while the other half are reducing or staying the same.

Table 4-17. Change in Numbers of Classes, by Division, By School Board Enrolment, 2004-2007

Board Enrolment	Primary % change	Junior % change	Intermediate % change	Junior / Intermediate % change
Over 64,000	10.49	3.40	2.67	3.11
38,000 - 64,000	10.06	-0.23	-2.72	-1.24
22,000 - 38,000	7.24	-2.91	-2.79	-2.86
Under 22,000	3.18	-2.46	-4.74	-3.37
Average for Ontario	8.31	0.38	-0.91	-0.14

Table 4-17 illustrates the shift in numbers of classes in elementary schools in Ontario. While the number of primary classes has been increasing, as described above, in general the numbers of junior and intermediate classes have been declining. The one exception is the number of intermediate classes in the largest school boards, which has grown substantially. The rate of decline for junior and intermediate classes was highest in the smallest school boards. This phenomenon is curious when combined with the very slight decline in average class size: one would expect that with declining numbers of classes that the number of student in those classes would increase. This may reflect the declining enrolment which is particularly strong in small school boards.

Table 4-18. Average Number of Students per Junior and Intermediate Class, By Grade, 2002-03 to 2007-08

Grade	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	% Increase /Decrease
4	25.40	25.35	24.92	24.61	24.51	24.50	-3.54
4-5	25.61	25.46	25.28	24.83	24.85	25.00	-2.38
5	25.73	25.62	25.44	25.06	25.02	25.00	-2.84
5-6	25.64	25.52	25.37	25.03	25.05	25.14	-1.95
6	25.75	25.80	25.59	25.32	25.14	25.28	-1.83
6-7	26.46	26.30	26.02	25.82	25.55	25.94	-1.97
7	25.89	25.93	25.73	25.55	25.54	25.70	-0.73
7-8	25.97	25.57	25.45	25.19	25.19	25.35	-2.39
8	26.11	26.11	25.96	25.82	25.68	26.04	-0.27
Other combined Jr/Int grades	22.60	22.37	21.67	21.19	20.49	20.54	-9.09
Overall Av. Jr/Int class size	25.71	25.65	25.42	25.16	25.06	25.04	-2.37

Table 4-18 shows an ascending scale in the size of classes at each grade level from Grade 4 to Grade 8. It is interesting that a combined-grade class is consistently larger than the lower single-grade class, and generally the same size as the higher single-grade class. In the analysis for this table, we added an earlier year (2002-03) to examine how the trend changed before and after the implementation of PCS. The table shows that there has been a decrease in the average size of these classes between 2002-03 and 2007-08, and this decrease has been most evident in grades 4 and 5. Further analysis, however, shows that the decline in class size occurred between 2002-03 and 2005-06; the class size has actually increased slightly in 2006-07 and 2007-08 in combined junior grades and in all intermediate grades. The “other combined” line in the table shows that the average size of classes with multiple grades has consistently been smaller than any other average class size at the junior and intermediate level.

Table 4-19. Junior and Intermediate Enrolments Across the Province, 2002-03 to 2007-08

Grade	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	% Increase /Decrease
4	111,475	111,173	112,997	108,271	100,692	89,808	-19.44
4-5	38,930	38,781	38,829	38,885	45,399	52,527	34.93
5	107,679	104,973	105,917	104,094	93,588	84,239	-21.77
5-6	41,515	42,418	41,780	42,780	46,370	50,380	21.35
6	120,012	120,419	117,403	118,174	114,076	103,936	-13.40
6-7	12,620	11,623	12,569	12,496	13,899	18,909	49.83
7	125,263	123,924	124,102	121,351	120,242	116,001	-7.39
7-8	37,243	37,173	37,692	37,712	39,800	43,072	15.65
8	127,296	130,533	128,869	129,715	125,174	124,259	-2.39
Other combined Jr/Int grades	2162	1983	1955	1946	1886	1837	-15.03
Total Jr/Int enrolment	724,195	723,000	722,113	715,424	701,126	684,968	-5.42

The trend in enrolment in junior and intermediate grades parallels the trend for all elementary students described in Table 4-1. The change described in Table 4-19 amounts to a general enrolment decline of 5.4% from 2002-03 to 2007-08. Most of this decline happened since 2004; there was very little change in enrolment from 2002-2004. This shows a lag in the system, where primary grades saw an earlier drop in their enrolment.

Table 4-20. Change in Number of Junior and Intermediate Classes, 2003-04 to 2007-08

Grade	2003-04	2004-05	2005-06	2006-07	2007-08	% Increase /Decrease
4	4385	4535	4400	4109	3665	-16.50
4-5	1523	1536	1566	1827	2101	38.22
5	4098	4163	4154	3741	3370	-19.47
5-6	1662	1647	1709	1851	2004	23.78
6	4668	4588	4667	4537	4111	-11.80
6-7	442	483	484	544	729	52.83
7	4780	4824	4750	4708	4514	-6.70
7-8	1454	1481	1497	1580	1699	18.48
8	4999	4964	5023	4874	4771	-2.13
Subtotals	28,011	28,221	28,250	27,771	26,964	-3.7%
Other Combined Jr/Int classes	127	124	127	121	117	-7.87
Totals	28,138	28,345	27,377	27,892	27,081	-3.76

(Note: This table excludes combined grades that include primary levels.)

Table 4-20 shows the number of classes for junior and intermediate grades; again, this table leaves out 3-4 combined-grade classes. The total numbers of classes at junior and intermediate levels have decreased by 3.76% from 2003-4 to 2007-8. Corresponding to the changes in enrolment shown in Table 4-19, the decline in the number of classes was modest between 2003-4 and 2004-5 and has been significantly higher since then. The most notable shift illustrated by these data is the decline in single-grade classes and the corresponding increase in combined-grades classes. The increase in combined-grade classes could be the result of both decreasing enrolment and primary class size. It is not possible to apportion this increase to either. Combined grades have always been part of class organization in Ontario. In some boards, as enrolment and class size decreased, the number of combined-grade classes also decreased. This shift has been stronger at the junior levels and less rapid at the intermediate levels. The shift was also strongest in the first few years of this period; in the last few years, during PCS implementation, the rate of change has declined, although the number of combined-grade classes has continued to rise. While we note changes that have taken place during the implementation of PCS, we need to remember that other factors—particularly increasing or decreasing enrolment—have been taking place at the same time, and are likely to have influenced the use of combined classes.

Tables 4-21 and 4-22 below -- the analyses of the distribution of class sizes in junior and intermediate grades -- show a substantial decrease in the largest sized classes and an increase in the numbers of classes with fewer students. Following a frequency distribution, we grouped junior and intermediate classes into categories of small, medium and large classes

(using slightly different categories for junior and intermediate, based on their frequency). There are significantly fewer large classes (over 28 students for junior, and over 29 for intermediate) , and the rate of this decline has increased in the four years since the implementation of PCS. There has been a corresponding increase in the number of the smallest junior classes with fewer than 24 students, but the number of intermediate classes with fewer than 24 students has declined. It is the mid-range of intermediate classes where we see the growth—from 24 to 29 students.

Table 4-21. Distribution of Junior Classes by Class Size, 2002-03 to 2007-08

	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Percent junior classes 21 students or less	11.68	12.13	13.68	15.89	16.48	16.39
Percent junior classes 22 – 28 students	67.45	67.37	67.98	68.27	68.47	69.41
Percent junior classes over 28 students	20.87	20.50	18.34	15.84	15.05	14.20

Table 4-22. Distribution of Intermediate Classes by Class Size, 2002-03 to 2007-08

	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Percent intermediate classes 23 students or less	13.28	12.56	13.49	13.55	13.99	11.20
Percent intermediate classes 24 – 29 students	57.64	59.85	60.29	61.90	62.06	65.19
Percent intermediate classes over 29 students	29.08	27.59	26.23	24.56	23.95	23.61

These averages mask considerable variation across school boards and across schools within school boards. In the junior average class sizes, for instance, half the school boards have averages higher than those shown in the table and half have lower averages. Some of the school boards we visited reported particular concerns about rising junior class sizes at the time that primary classes were declining. This is discussed in more detail in later chapters.

In summary, we see that junior classes are generally larger than primary classes, and intermediate classes are generally larger than either junior or primary, but it does not appear that the reduction of primary class size has produced an increase in the size of classes at higher grades on average. The average size of primary classes in 2007 is 18.8 students, and has been declining steadily since 2004. The average class size for junior in 2007 was 24.6 students, and this average has not changed much since 2003. The average for intermediate grades was 24.7 students in 2007, and this average has not changed much either since 2003. There has been a significant reduction in the largest classes in junior and intermediate grades.

Changes in combined grades

Did the number of combined-grade classes increase? What grades were involved?

Table 4-23. Numbers of Combined-Grade Classes Compared to Single-Grade Classes in Elementary Schools, 2003-04 to 2007-08

	2003-04	2004-05	2005-06	2006-07	2007-08	Number Increase /Decrease
Jr. Kindergarten	3114	3056	3154	3040	2714	-400
Sr. Kindergarten	3388	3388	3410	3296	2848	-540
JK/SK combined grade	5334	5583	5784	6591	7474	2140
Grade 1	5212	5452	5577	5509	5601	389
SK/Grade 1 combined grade	131	111	87	140	214	83
Grade 2	4512	4587	4723	4748	4409	-103
Grade 1/2 combined grade	1735	1751	1718	1921	2450	715
Grade 3	4746	4877	4892	5151	4874	128
Grade 2/3 combined grade	1447	1380	1426	1709	2206	759
Grade 4	4385	4535	4400	4109	3665	-724
Grade 3/4 combined grade	1192	1048	1029	1042	1620	428
Grade 5	4098	4163	4154	3741	3370	-728
Grade 4/5 combined grade	1523	1536	1566	1827	2101	578
Grade 6	4668	4588	4667	4537	4111	-557
Grade 5/6 combined grade	1662	1647	1709	1851	2004	342
Grade 7	4780	4824	4750	4708	4514	-266
Grade 6/7 combined grade	442	483	484	544	729	287
Grade 8	4999	4964	5023	4874	4771	-228
Grade 7/8 combined grade	1454	1481	1497	1580	1699	245
Other Combined	330	306	296	285	262	-68
Total all elementary	59,152	59,760	60,346	61,203	61,636	2484

Table 4-23 presents the numbers of classes at each single-grade level and compares them to the numbers of classes with pairs of grades. Overall, we see that the numbers of single-grade classes are decreasing, except at the Grade 1 and 3 levels. While single grades still outnumber combined-grade classes, the numbers of combined grades are increasing in all the grade levels. As noted earlier, this is a phenomenon that pre-dates the primary class size policy. The combined-grade classes are increasing fastest in the lower grades. The number of multiple combined grades, only a minor feature in most schools, has been declining steadily over this period. There were few dramatic changes in the numbers of combined grades between 2003-4 and 2005-6. The major changes happened from 2005 to 2007, during the last two years of implementation of PCS, when the number of combined-grade classes increased by 36%.

Over the years of PCS implementation, the number of SK-Grade 1 combined grades has increased by 86%, although the least common pairing of grade levels is to combine a Senior Kindergarten (SK) class with a Grade 1 class. At the same time, the number of JK-SK combined-grade classes (by far the most common combination of grades) has increased faster than almost any other level. Triple combined-grade classes are much rarer than the pairing of two grades, and it appears that the numbers of triple-grade classes has been fluctuating irregularly over the years covered by the data. Intermediate combined-grade classes are less common than primary and junior combinations; this difference was already in place before the implementation of PCS.

We wondered whether the variation in numbers of combined-grade classes was a function of school board enrolment size. Table 4-24 below presents data to answer that question.

Table 4-24. Change in the Number and Percentage of Elementary Combined Grade Classes, By School Board Enrolment, 2003-04 to 2007-08

Board Enrolment	2003-04	2004-05	2005-06	2006-07	2007-08	% increase
Over 64,000	6451	6518	6703	7666	9298	44.13%
38,000 - 64,000	2566	2535	2666	2923	3466	35.07%
22,000 - 38,000	2,418	2470	2488	2841	3387	40.07%
Under 22,000	3,815	3803	3739	4060	4608	20.79%
Total for Ontario	15,250	15,326	15,596	17,490	20,759	36.12%

While the growth in combined-grade classes over this period has been substantial, not all boards have followed this trend. Between 2003 and 2007, the school boards with the smallest enrolment (fewer than 22,000 students) increased the number of combined grades by just over 20%, while all school boards with the greatest enrolment increased their use of combined-grade classes by between 35 and 44%. As noted earlier, these changes are taking place at a time when most school boards are experiencing declining enrolment, so it is not clear how much these changes are attributable to PCS, and how much to changing enrolment. Table 4-25 below presents more detail on this phenomenon.

In 2003-04, 25.8% of elementary classes were combined grades; by 2007-08, this proportion had grown by 30%, to 33.7% of all elementary-grade classes. This shift from one-quarter to one-third of all elementary classes is a substantial change in class format for the province. Table 4-24 shows variation based on board enrolment.

Eleven of the 72 school boards had fewer combined-grade classes in 2007 than they did in 2003. Ten of these 11 school boards were among the smallest in Ontario, almost all in the north of the province. While two of these 11 boards had very high proportions of combined-grade classes in 2003-04, the rest had moderate to small levels of combined grades. Three additional school boards showed less than 1% change over the five years, although in the intervening years, there was some variation in the numbers. The remaining 58 school boards all increased the proportion of combined-grade classes in their schools.

At the highest end of the scale, 18 school boards have increased the proportion of combined-grade classes by more than 50%. Statistically, we would expect the largest increases in boards that started with a very small proportion, and this is indeed the case: none of these 18 school boards had more than 37.6% of their classes as combined grades in 2003-04. But there is considerable range in the starting points for boards with high increases, ranging from just 8% up to 37%. We wondered if this phenomenon affected larger boards more, but the boards

with the very largest increases (over 80%), are in all four size categories. Some school boards have increased the number of combined-grade classes in this period by more than 100%.

The wide variation in starting and end points with respect to combined-grade classes illustrates the complexity of the phenomenon. While there was some acceleration of the trends during the years of PCS implementation, it is clear that other factors—particularly changes in enrolment—also impact the way this plays out. This would be a fruitful area for further analysis.

We were interested to discover if there had been any shift in the distribution of students in these combined-grade classes. We undertook an analysis to examine this phenomenon. To simplify the analysis, we isolated all the primary combined-grade classes with just two grade levels. We then identified the classes in which at least 75% of the students were at one grade level (and less than 25% were at the other grade level). Table 4-25 below gives the results of this analysis.

Table 4-25. Number of Unbalanced Combined Primary Grade Classes With at Least $\frac{3}{4}$ of the Students in One Grade, 2002-03 to 2007-08

	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Total Number of Classes unbalanced at three-quarters	1691	1725	1658	1610	1886	2822
(Mean) Percent of Classes unbalanced at three-quarters	13.1	13.1	12.3	11.8	13.0	16.1

Note: These calculations focus only on combined primary-grade classes with two grade levels; they do not include multi-grade combinations. The percentage is calculated as the number of unbalanced classes as a percent of the total number of two-grade combined classes in the province.

There was some variation in the number of these unbalanced combined classes, reaching a peak of 1,725 in 2003; the numbers then declined in 2004 and 2005. The numbers increased substantially in 2006 and grew even more in 2007 to a peak of 16.1%. The timing of these changes matched the changes for all combined-grade classes described in Table 4-24. In the last two years, the number of unbalanced classes has increased even faster than the overall increase in combined classes.

The ten school boards with the highest proportion of unbalanced combined-grade classes all had more than 20% of two-grade combined classes in this category. All of these boards were among the smallest in terms of enrolment, almost all of them were in the north of the province, and almost all of them had declining enrolment. Only one of them was a French-language board. Among the smallest school boards, there was considerable variation in this percentage from year to year, with no overall trend. The number would increase one year and decrease the next.

At the other end of the scale, almost all the school boards with the smallest proportion (less than 10%) of unbalanced combined classes were those with increasing enrolment. While many of these were some of the largest school boards, the group also included five small French-language boards. Indeed, all the French-language boards ranked lower than the provincial average on the percentage of unbalanced combined grades.

In summary, the numbers of combined-grade classes has increased substantially. While the increase was also strong at the junior and intermediate levels, the growth rates were highest at the primary level and particularly at the Kindergarten level. This increase was evident among combinations of two grades; combinations of three grades showed no trend over this period.

We also saw that the proportion of unbalanced classes (having at least three-quarters of the students in one of the grade levels of a combined class) increased in the past two years.

Discussion

The numeric data suggest that Ontario has almost exactly met the targets set for the primary class size reduction: by 2007, 88% of primary classes had 20 students or less, while 11% had between 21 and 23 students. Less than 1% of primary classes had more than 23 students. The ministry objective was to have at least 90% of primary classes with 20 students or fewer, and up to 10% of classes with 21-23 students.

Beyond the numeric success of this program, our analyses have raised several issues that illustrate the complexity of this seemingly straightforward policy. The first of these is the use of actual class sizes as the measurement of policy success. The use of the “hard cap” on class size ensured that class sizes did indeed decline across the province. The ministry provided a very clear statement of PCS targets: the subsequent achievement of these targets indicates that educators knew what was to be accomplished. In the policy implementation literature, a clear and measurable target is seen as essential to policy success.

The emphasis on *actual* class size ensured a very different implementation process from a strategy that would have used *average* class size. Our analyses of the ministry databases show that in the junior and intermediate grades, where an average class size of 25 was set as a target, the implementation had much more variation than in the primary grades. While the average class size in junior and intermediate levels was 25.04 in 2007, there were classes as low as 12 students and as high as 32 students.

The use of the “hard cap” at the primary level ensured a much more consistent implementation. It did, however, create a problem. Backed up by funding for those that complied, the hard cap ensured that school boards would strive to achieve the targets of the policy but not exceed them. The vast majority of school boards reached the target of 90% of classes at 20 or fewer students, and exactly 10% of classes with 21-23 students, as this produced optimum revenue. In the process, however, boards and schools could no longer argue for having some classes with more students in order to allow for some classes with much smaller numbers. While the policy permits schools to have primary classes smaller than 20 students, the financial pressure to maximize revenue will motivate boards to plan to have classes as close as possible to the maximum permitted by the policy.

A second issue emerging from the analyses is the concentration of funding. It is not surprising that the largest boards have received the most funding through PCS: the money goes to where there are the most students. This will be taken up in the next chapter in relation to resource capacity.

CHAPTER 5: PCS implementation at the school board level

This chapter is primarily drawn from interviews with administrators in each of the eight Ontario school boards where we conducted field visits. These school boards varied by size and sector (language and denomination), were geographically distributed across the province, and in terms of whether enrolment was declining, stable, or increasing.

There are other factors that might affect how a policy like PCS might be implemented. For instance, school enrolment could make a significant difference in the choices open to a principal in how to allocate students and teachers to classes. In our sample, we have two medium-large school boards with similar numbers of elementary students, but very different school sizes. Another factor may be the primary class size at the start of the implementation of this policy; a school board where the primary classes are already close to that required by PCS will have a much easier time in implementation than a board where primary classes were much larger to begin with. Our analysis explored how all these factors played out among our eight site-visit boards.

Direction or support provided by school boards

The direction and support provided by boards to schools focused primarily on the planning and monitoring that school boards did to ensure compliance with the policy. This varied according to the enrolment of the board, as the larger boards have substantial planning functions in place, while small boards have fewer central office staff to dedicate to this work. The district office defined the degree of involvement of schools in decisions relating to PCS. Most of the boards were fairly directive in this implementation; only three of the eight boards where we did site visits allowed schools any discretion in the way they approached the implementation of PCS in terms of determining the specific grade composition of classes.

Whatever the existing capacity of a school board office, meeting the requirements of PCS required a time-consuming process that followed an annual cycle. In September, at the beginning of the school year, board staff members were involved in allocating additional teachers to schools in cases where actual enrolments exceeded projections made the previous spring. In October, staff reported on actual class sizes and composition to the Ministry of Education through an online reporting system. In January or February, board staff began an iterative process with principals to determine enrolment projections and therefore staff allocations for the following school year; this interaction lasted until roughly May. In the late spring, following the protocol laid out in the local collective agreement, board personnel distributed redundancy notices, posting new teaching positions and enabling permanent teachers to apply for transfers from one school to another.

In one of the boards we visited, the board office used computer software to manage the process. School projections from the spring were fed into the board office, and then into the board database, to produce a report for each school, specifying the number of classes in each grade, the number of combined classes, and the number of students in each class. It was then up to the school to decide which teacher was allocated to which class, and to decide which students went to each class. The changes in September, once the actual enrolment was clear, were handled in a similar way, using the board's software. Thanks to the technology, the board was able to process the data and produce a new class allocation for each school in just a few days.

This was, however, the most difficult part for the schools. Changes in the class structure had an impact on a number of teachers, who were now teaching something other than the class they had prepared for over the summer. It also affected students, who were moved to a new

class, and might be separated from a close friend. Upset students led to upset parents, who would call the principal asking for a different class for their child. Parents would also call school board trustees, who would confer with board leaders and respond to the parents. This process caused considerable stress for administrators, teachers, students and their families. Many board leaders questioned the degree to which this was necessary, citing instances where the presence of even a single extra child caused disruptions in several classes. The lack of flexibility was seen as a significant part of the changes due to PCS. As one board official told us, "I think the challenges at the school level and then moving up to the Board level, is that you've lost flexibility, there's no doubt about it, you're losing some flexibility... there may be times when we require a class of 21 to be rearranged to be reorganized."

In one of the large boards we visited, they told us that the September changes in primary classes were also having an impact on junior and intermediate classes; boards were focusing on getting the primary classes settled first, and only later coming to address challenges in the upper grades. As one board official told us, "we really could not address those larger class sizes [at the junior and intermediate level] until we confirmed that we were able to meet the ministry compliancy... so it was the end of October before you know a teacher could be hired per se and put in place."

One of the French-language boards made a strategic decision to plan for primary classes smaller than 20, in order to build in flexibility in their classes, and to avoid changes in September. While this approach means the board has higher costs per student, they are able to use this flexibility to make some local adjustments to account for unique situations, and avoid many of the disruptions in September.

Board-level perceptions of PCS

In general, the district superintendents and staff reported having a positive reaction when this policy was first announced. They believed this was a "good" policy in terms of providing resources for additional teaching staff and supporting student learning. In the final two years of implementation, however, when we visited school boards, the opinions about the policy were more mixed. The initial positive view was tempered by the administrative challenges of implementing the policy, particularly in the final year with the hard cap in primary class size. District staff continued to think that in principle this policy was likely to lead to better classroom practice, although they had no direct evidence to support this belief. Their logic was that since teachers had fewer students to supervise, it would be easier for them to attend to individual needs.

Aside from some mentions of links to literacy learning in a couple of boards, no district staff member reported that PCS had any effect on other policies or priorities in the district. The two exceptions to this were in a small declining enrolment board, where limited resources required a redirection of funds that had been used to hire educational assistants in order to provide the supports required for implementing PCS; and a small, increasing enrolment board where PCS provided the opportunity for implementing innovative programming. With the exceptions of these two boards, district staff seemed surprised when asked what effect PCS might have on board initiatives. There appeared to be a strong perception from board superintendents and staff of PCS as a stand-alone policy, requiring a managerial approach to be implemented.

Key issues identified by school board staff and officials

PCS has increased the use of portables in some school boards (though, as Chapter 4 reports, the overall provincial use of portables declined). Board staff knew that many educators and parents were not keen about the use of portables; indeed, portables were avoided if possible in several boards.

PCS has increased the number of combined-grade classes. This phenomenon has been growing over the past decade, pre-dating PCS. During the implementation of PCS, however, the use did indeed increase, in several cases as a board directive to all schools, as boards found the design of a combined class provided some flexibility in class allocation, particularly in small schools. Combined grades were particularly useful in avoiding the disruptive changes in classes in September each year, when schools adjusted for changes in student enrolment from their projections in the spring. Board officials were fairly positive about combined-grade classes (seeing combined grades as a useful administrative mechanism); while they knew teachers and parents were not enthusiastic, this was less persuasive at the board level than fiscal realities.

As a result of attempts by the provincial government to exert more control over resource allocation across schools since the mid-1990s, the boards were putting more efforts into optimizing class sizes in terms of managing staffing costs. The centralization of funding for the school boards and its allocation on a per student basis directed boards to have the largest classes possible, thereby increasing the revenue (based on numbers of students) while limiting the expenditure (number of teachers). The introduction of the PCS policy made it more important that classes hit the exact number of 20 students in order to optimize revenue. A class of 20 students gets the most per-student revenue from the government, at the cost of a single teacher, while allowing classes with fewer than 20 students reduces revenue without reducing costs. Hence there is a strong incentive for school boards to get as many classes as possible at exactly 20 students.

There was some discussion about the timing of funding for this initiative. It was clear from discussions with ministry staff that it took a considerable length of time to develop the allocation of capital funding for each school and board. Hence the announcement of capital funding came after the announcement of the PCS policy. Once boards received news of their allocation, there was then some planning time for each board to decide on its strategy, based on the available funding, and then to work with suppliers or contractors to plan the installation of the portable, portapak or RCM. Ministry staff suggest that this planning process can take as long as two years, before the money actually gets spent. Hence, our comment in chapter 4 in which we describe how less than two-thirds of the capital funding had actually been spent by the end of the fourth year of PCS implementation.

Prior to PCS, some boards had a practice of organizing very small classes (as low as 12-14 students) in high-needs areas to provide students with more individual support. Boards were able to do this by creating other classes with more students. Following the implementation of PCS, some boards had difficulty (or no longer had the flexibility) to organize small classes while keeping in compliance with PCS.

A similar pressure has been placed on the use of resource teachers in the French-language boards. Before PCS, such resource teachers could have been allocated with some flexibility. After PCS, with increased control on revenue and spending at the board level, schools have reported that they no longer have the ability to access ALF/PDF teachers; these individuals have become primary classroom teachers instead.

Other issues

PCS is complicated in school boards with dual track language programs because they add a layer of complexity to the process of enrolment forecasting. Small schools, schools geographically remote from other schools, and situations where school boards believe they are in competition with contiguous boards for student enrolment also makes it more difficult to

treat PCS as a simple administrative exercise, since there are extenuating arguments for boards to ensure adequate program resources.

PCS has also created a demand for new teachers in the new classes that have been created. This in turn has created a demand at the board level for more mentoring and professional development to support new teachers, which is stretching the resources of many school boards in an unexpected way. Some small boards, particularly the French-language ones, have difficulty recruiting qualified staff. With the increased demand for teachers due to the increased number of primary classes, some boards have been hard pressed to find suitable teachers to fill these posts. An unintended outcome is that, as one French-language board reported, they have had to move ALF teachers into full-time classroom positions, as they could not find the staff otherwise.

Both the enrolment of the board and the rate at which enrolment is changing are significant factors in the ability of boards to respond to government policy. Together, they can be combined into a factor we call “resource capacity.” This term describes the degree to which a board has the capacity to plan for change, to support changes as they happen, and allow changes to work with other existing policies—in other words, not only to reach compliance but to make it more likely that positive synergies could be found among PCS and other board priorities. For instance, a large school board with increasing enrolment is likely to have a high degree of capacity to respond to a policy like PCS. They will have a large central office, with enough people already involved in the tasks of planning, implementing and monitoring activities to approach PCS effectively. Conversely, a small board with declining enrolment had much less capacity to devote to PCS implementation. There are few clerical support staff at the board office, and everyone is stretched thinly across a wide range of responsibilities. At the same time, other factors like geographical area may also affect the resource capacity: a board with a small area but large enrolment may have a larger resource capacity than a board with a huge area and medium or small enrolment. Indeed, the density of the school population has a large effect on the resource capacity for the board.

What we observed in our visits to the administrative offices was a wide variation in the resources that the boards could access to respond to any new policy. But even school boards with longstanding and well-resourced planning and projection practices found PCS took significant effort by several staff over many weeks during the year.

Part of our understanding of resource capacity includes the capacity of the leadership to deal with new policies. We know from other research that leadership has a significant impact on the life of each school, and that effect can be charted through the work of teachers to impact student achievement. The ability of a school board to develop this leadership capacity is a significant indicator of overall district capacity. This ability may be a function of scale (large boards with many leaders may be able to afford to make a more substantial investment in developing leaders) or density (leaders who see each other regularly to discuss challenges and solutions may develop a stronger sense of collective capacity). In general, we saw a primarily managerial approach to leadership in implementing PCS, which was not altogether surprising since PCS is a “technical” policy that actually requires managerial leadership to implement. What was both surprising and disappointing, however, was that this managerial approach to leadership demonstrated little capacity to link PCS with factors that might affect student learning. There was some variation in this leadership capacity, as we have indicated above, but overall most boards did not direct their efforts to develop instructional leadership capacity towards PCS.

The school boards we visited varied in their understanding of the objective of PCS. On the one hand, boards could consider this a structural change, with a clearly defined goal (at least 90% of primary classes at 20 or fewer students), clear assessment and reporting mechanisms, and

resources to support the implementation. The majority of ministry communications with school boards focused on these structural issues, so boards would be clear about what was to be accomplished. On the other hand, boards could consider PCS as a tool in a broader strategy for improving teaching and learning. But few of the school boards we visited had made any effort to tie PCS into teaching and learning strategies. There was considerable optimism that this link might be made by teachers, but little effort appeared to be taken to make it happen. Just two of our eight site visit boards seemed to have made this connection. Both of these boards were increasing in enrolment; one had large enrolment and one had small enrolment, but both appeared to have the resources they need to make PCS part of a coherent board strategy to improve teaching and learning. The ability to make this connection seems to be an important test of the success of PCS.

CHAPTER 6: PCS implementation and principals' work

The current educational policy environment can be characterized by two trends that often work in complementary ways. On the one hand, policymakers have demonstrated an emphasis on centrally designed and coordinated mandates with explicit benchmarks set at the provincial level. On the other hand, both researchers and policymakers have paid increasing attention to *leadership* and capacity building at the school level as key policy levers to remedy school underperformance. Primary class size sits at the intersection of these two trends: it is a centralized, provincial policy with unambiguous directives tightly linked to incentives and sanctions, and its implementation requires and reconfigures the work and priorities of principals.

In order to ensure that we interviewed principals working in a wide range of school settings from each of the eight school districts, we selected three schools that represented variations in community socio-economic status, size, and whether they were located in urban, rural or suburban settings.

Overview

The literature on policy implementation and on schools as organizations tends to view schools as idiosyncratic places that are more likely to change a reform than be changed by it, using site level autonomy and discretion to redirect policy goals in unexpected ways (see for example, Cuban, 1998; Evans, 1996; Weick, 1976). The portrait that emerges from our own study tells a different story. As previously discussed, the provincial and district level data show that schools have implemented the primary enrolment hard cap of 20 students with very few exceptions, as confirmed by interviews with principals and site visits. Our diverse sample of school boards and schools, with their different organizational cultures and socio-economic contexts, has the potential to provide us with interesting information about the different ways that this policy is understood in different places. Significantly, however, principals across the schools in our study spoke in strikingly *similar* ways about their responsibilities associated with this reform initiative.

The 24 principals all described the dilemmas of middle management. In addition to this theme, data from principal interviews also shed light on how teachers were placed with their classes (sometimes involving tradeoffs); how instructional change was aspired to but not necessarily witnessed or otherwise supported; how PCS worked in conjunction with or alongside other school initiatives; and how relationships with parents were influenced by the new policy.

The sections that follow provide a sketch of each of these themes with some quotes to illustrate the kinds of responses provided by principals.

Constraints of middle management

Principals occupy a classic middle management role. They sit atop a school hierarchy, yet they are responsible for implementing policy mandates received from above. They are expected to shape school culture in ways that take local experiences into account and at the same time to facilitate policies that they have not chosen. In our study, principals' descriptions of PCS implementation reflected this classic middle management role where they described what they were responsible for but had no authority to change as well as how they used their authority within certain boundaries to smooth out potential difficulties associated with implementation of the policy.

The hard cap

Principals were uniformly positive when discussing the potential benefits of PCS. No one, in other words, wished that it had not happened. Although new teachers were not hired in every school that we visited, in some schools the implementation of PCS meant that teachers did not have to be let go from one year to the next, thus providing continuity and an impact on school morale that principals felt was positive.

Nevertheless, principals also articulated several administrative issues that arose as a result of the particular constraints of the hard cap of 20 students per primary class. The hard cap highlighted the middle management aspects of principals' role in PCS. As one principal put it quite directly, "They gave us a memo that our class sizes were not to go over 20." This memo—and directives similar to it across the province—made clear that class size was no longer determined by general guidelines to be interpreted at the school site, but by a strict rule. Another principal, describing the growth of combined-grade groups, explained how little flexibility there was in distributing students.

There wasn't very much flexibility. There was very little. [The board] determined the section and the numbers in each section. They did tell us that if there was something really glaring, to bring it to the board staffing committee. But basically the number of splits and the way they were arranged was basically decided for us.

Which students and teachers would go where was a site decision but the basic structures for distribution were received from above and only potentially negotiable in "glaring" instances. This principal, like many others in our sample, would have preferred greater flexibility in making decisions about the distribution of teachers and students into classes. Many principals made similar claims very plainly during interviews. For example, this quote, from another principal, is typical of the stance on the hard cap:

Although it's great to have primary class size [reduction], it would have been nice to have a little bit of greater flexibility at the school level to meet the realities of that particular school's context.

Yet another principal in a different part of the province put it this way:

My biggest concern is just how rigid it is. That there is not the flexibility to say can we have the class at 18 and this class at 22 because in the class of 18 we have got some children with extenuating needs or special need and in the class of 22 they are all very strong and a working well together kind of group. You know, I wish we had that flexibility.

There are several things worth noting about the principals' stance on the hard cap. First, they make clear that there was no ambiguity regarding implementation. The hard cap was a rule, and there was no question that it was to be followed. Second, the principals' responses imply

that from their perspective the administrative task of placing students into groups of 20 trumped other considerations of groups of students' instructional needs—needs which, in the past, could have been addressed via some discretion at the site level.

Ministry and school board officials did not tell principals which particular students had to be placed in which particular classes; in this sense, principals continued to have important influence on the organization of classes at the site level. But whereas concerns about classroom mix might have, in the past, led principals to interpret enrolment guidelines such that a particular class in a particular year might have been slightly bigger or slightly smaller than the benchmark, and whereas these site-specific responses to local needs were often supported by both teachers and parents, PCS rules took this administrative tool off the table. Importantly, principals' concerns about the lack of flexibility were more than simple annoyance at newly complicated administrative tasks. Their concerns were motivated by what they saw as potential drawbacks, unintended though they were, to instructional programming and school climate.

Combined-grade classes

Principals noted that the hard cap had cascading implications across all grade levels in a school. If Grade 1 enrolment numbers were not a multiple of 20, combined grading implicated Grade 2, which likely had an impact on Grade 3, and so on, often up through all the grades in the school. Within all schools, particularly those with high levels of student turnover or “transience,” planning placements for both students and teachers took on an added degree of complexity. As one principal put it, “Ultimately, when it comes down to it, you still have the kids that show up in your schools and the kids don't come in packages of 20.” Most principals raised the issue of combined or shared-grade classes as one challenging managerial task associated with the implementation of the policy. For some principals with small schools experiencing declining enrolment, combined-grade classes were not new and therefore not controversial. Within some contexts, combined-grade classes were pursued as part of an intentional student grouping strategy and were, again, not controversial. However, for most principals in our study, combined-grade classes were a break with past practice and required administrative tradeoffs as well as management of teacher and parent morale that were new.

Tradeoffs with teachers

Principals described a variety of ways that they worked with teachers to adjust teaching schedules and student groupings to meet the PCS mandate. Most principals described working with the school staffing committee; sometimes principals presented teachers with a limited number of options and asked for preferences and sometimes principals worked with the staffing committee to develop one plan for discussion with the rest of staff. Although several principals mentioned the following dynamic at their schools—"the primary teachers wanted to go with a straight class with more kids than a split class with less kids"—principals noted that they had to make clear that that option was "off the table." In making plans for staffing for the upcoming year, principals stated that they negotiated informal, mutually acceptable tradeoffs. For example, as one principal put it, "I tell the staff that if they had a split this year, you don't have a split next year, and they know that."

Principals spoke of staffing most often in terms of these tradeoffs, in terms of hard years versus easier years for teachers—rather than, for example, considering teachers' skills in relation to particular grades or student needs (though we heard a few examples of this), or in terms of fostering teachers' development of new skills by assigning them to particular kinds of classes over a period of time. In other words, principals' tendencies were geared toward more short-term conflict management and less toward longer-term concerns about teacher quality.

Instruction

Positive impacts on instruction

All principals expressed high hopes for the potential that PCS would make possible positive changes in instruction. With fewer students, the argument goes, teachers have the opportunity for more creative lessons and groupings of students and the chance both to identify and to respond to students' individual needs. As one principal said,

When you're trying to do your diagnostic and formative and summative assessments if you actually have the time to do it with the children, you're going to have a positive benefit.

Another principal put it succinctly: "I think that the reduction in class size leads to more time spent with the students." Yet another principal, in a very different context, spoke very similarly about the potential for teaching with smaller class sizes:

The amount of prepping they have to do is decreased because they don't have as many kids to do things with, so they are maybe able to be a bit more creative and do a few more creative things because the [behavioural problems] aren't there. You don't have to worry so much about the management of the classroom.

Creative grouping, more personal attention, and greater likelihood of identifying special needs were all cited by principals as advantages to PCS. Whereas principals' aspirations for changes in instruction were clear and specific, interview data are less clear about whether principals in fact saw these changes in practice and provided support for them, or whether they were making an argument based on aspiration for *potential* benefits. The fact that principals recognized the potential for different and better instruction in the primary years is, at least, a decent precondition for providing instructional leadership in the future. If principals themselves are provided with professional learning opportunities regarding how to support teachers' work to capitalize on the new class size, perhaps in the realm of child development as suggested by one principal in the study, then improved instructional practice may be more likely to move from aspiration to reality.

Negative impacts on instruction

Principals also pointed to unintentional impacts on instruction that might have negative consequences for student learning and teachers' work. One principal expressed a concern about the resource implications for sharing math manipulatives or other instructional materials among a variety of teachers at the same grade level. This principal was also concerned with the potential impact on Education Quality and Accountability Office (EQAO) testing: "It makes it much more difficult prepping for the EQAO because then you have more teachers with their finger in the pie."

An administrative team at a school in a French-language board explained that class size reduction had had unintended consequences in terms of outside-of-classroom supports for instruction; it meant the removal of school-wide support for French-as-a-foreign-language learners at their school.

We had 58 students in preschool and kindergarten at the beginning of the school year, so we had to reorganize and create a third kindergarten class. At the time, we didn't have the staff, so we had to take the ALF resource person and assign her to the classroom and we created a class plus ALF, an ALF junior kindergarten. So she could only exercise her ALF role in that particular class, but for the rest of the school...

...We weren't given another teacher for those numbers, for that policy.

Our numbers didn't justify the additional person. So we had to make arrangements internally. These are some of the consequences of the policy.

We did not hear of losses of staffing support such as this at every school, but we did hear about issues similar to this (for example, in the case of staffing shifts that meant less special education support school-wide) in enough schools to raise the question of unintended outcomes of PCS on special needs situations.

Principals also remarked that the reconfiguration of classes late into September to meet the hard cap meant lost instructional time because of the need to re-establish classroom community and routines. It also had the unintended consequence of moving teachers who may have prepared during the summer for one grade level into a different grade level out of necessity. In the words of one principal,

It was quite disruptive to beginning year routines...And it made the schools look incompetent, like they didn't know what they were doing. And I think the way the information was given to the public, it appeared that these were school decisions and that the administrators and the teachers had not made very good decisions.

In addition to these logistical concerns, principals in some districts also expressed concerns about the unintended consequences of PCS on class size in junior grades. One principal explained the situation this way:

The formula that the ministry gives us to use, still only allows us to have 18 teachers. So that's what I'm told, you have 18 teachers, you have to make sure that the Primary classes are 20 or less, so where everybody else goes is up to you. So that's how come those numbers have ballooned in the juniors. I don't have the flexibility anymore to say okay, I'm going to put 2 or 3 more in these primary classes and make them 22 or 23 and I can use this other teacher up in the juniors, I don't have that flexibility any more because they have said you can only have this much in the primaries. That's probably the one that's the most frustrating for us and of course

from the teacher's point of view, it is huge. The amount of work that goes into having a class of 30 and trying to do some of these expectations that both the ministry and the board is expecting, like guided reading and differentiating teaching, some of these things is very difficult when you are sitting with 30 children who are insane [sic] anyway. And that is what they deal with every day. So, I could bet your bottom dollar, well I just know from being here that the kind of creativeness that goes on in a Grade 6 room is much limited by the numbers that they have, it's huge.

This quote illustrates that principals are in the position to assess the impact of PCS school-wide not only in the primary years. And in several instances, principals expressed concern with the potentially negative consequences of PCS for junior grades.

Relationships with parents

The majority of principals in the study mentioned management of parents' concerns with combined grades as one of the most challenging consequence of PCS. As one principal succinctly summed it up, "When parents find out their child is in a split class and that wasn't what they expected, they freak out." Another principal explained the potential tensions with parents in this way:

[Combined-grade classes] didn't make parents happy because they felt somehow that they had been tricked because the perception that the ministry was giving was that it was 20 to 1, like 20 Grade 1s, 20 Grade 2s, 20 Grade 3s, and then they found out like for our school last year that we had all split grades.

Few principals noted any particular support from their board to assist with managing parental concerns, "except for the little pamphlet," a handout developed by the ministry to answer parents' concerns about multi-grade classrooms. In one school where the principal described low amounts of parental involvement, there were fewer issues along these lines.

Although ministry resources have been devoted to encouraging parental involvement at the school level, particularly through Parents Reaching Out Grants, we did not hear of any intersection between PCS and parental involvement beyond the level of effective communication of class size policies and decisions. We also did not ask specific questions about provincial parental engagement activities.

Perceived connections to other initiatives

PCS exists within a provincial policy context that also simultaneously has emphasized numeracy and literacy for early grades. Principals' descriptions of PCS in relation to these other initiatives could be characterized as "parallel play." In other words, the numeracy and literacy emphasis happens through one pipeline of incentives and directions, whereas PCS happens through another. Principals did not articulate any consistent ways that these policies were in contradiction, but nor were they likely to see them as integrated. So, on the one hand, a principal might note: "You'll see word walls in classes this year that you wouldn't have seen two years ago," but it was unclear whether this instructional approach was mostly traceable to Numeracy and Literacy Secretariat initiatives or to changes in instructional practice mostly attributable to PCS.

Similarly, the ministry has recently coordinated a variety of activities to support leadership and has articulated a particular framework for this work. We are unable to say, based on our data, whether principals saw any connection between ministry-level discussions about leadership and ministry-level mandates regarding PCS.

Underlying conceptions of school leadership

The clarity of class size targets in conjunction with mechanisms for public reporting meant that PCS was implemented across the province with remarkable fidelity to the ministry's stated policy. This faithful implementation meant that principals in different schools were doing quite similar things, namely acknowledging new constraints on their flexibility and making the best of mandates received from above. In a context of clear rules, school leaders followed. There is a potentially interesting implication here that complicates some of the more widely held, currently popular understandings about school leadership. PCS required and rewarded principals' managerialism, a traditional school leadership role with a long historical lineage (see, for example, Beck & Murphy, 1993; Cubberley, 1923). At the same time and in connection to other policies within the ministry, a vision of site leadership as primarily oriented toward instruction, responsible for student learning outcomes, accomplished through distribution with colleagues and positive relationships with parents, was being promoted (see, for example, Ontario Ministry of Education, 2005b). Within the Literacy and Numeracy Secretariat, in particular, there has been interest in promoting successful leadership practices for principals in challenging circumstances (see McDougall et al., 2006). The renewed popularity of Effective Schools-style policy recommendations in Ontario and elsewhere has led to an expansive school improvement literature calling for increased power and autonomy for principals (Carter, 1999; Institute for Educational Leadership, 2000; Leader & Stern, 2008).

It is not our purpose here to reengage with an old debate about whether principals are *either* managers *or* leaders. They are, clearly, both, as this conclusion from a classic ethnography of the principalship makes clear:

A manager may also be a leader—but it is not necessary that he be one. The principalship is a manager's task. Yet there is no question that some principals exhibit more capacity for leadership than others. They create a sense of purpose among a majority of those with whom they interact. They seem able to capitalize on the potential of the institution while others are rendered helpless by its limitations. I am not ready to go so far as one principal who insisted that the principal "makes all the difference" in a school, but neither would I ever argue that he makes no difference at all. (Wolcott, 1973, p. 325).

The important implication to pay attention to here is that principals, like others in the system, are deciphering potentially contradictory mandates from above. Principals' leadership or managerial behaviours are shaped not only by personal disposition and skill but also by the policy context within which they work. PCS implementation has provided a lens for viewing how the principalship is understood within current policy mandates, and what we see is that, notwithstanding the rhetorical embrace of principals-as-leaders in some contexts, in the context of this initiative, principals functioned both by design and by default as managers. The incentives of PCS implementation place obstacles in the path of instructional leadership.

Nevertheless the story that emerges from our interviews with principals indicates several opportunities for leadership development. For example, latent in the sudden explosion of combined grades is the potential for cross-grade teacher development and teacher leadership, as more educators practice their pedagogy under this organizational arrangement. If the hard cap remains, there exist opportunities for incorporating teachers' skills into shared decision-making, in ways that could potentially return both teacher development and instructional concerns to a more central place in student and teacher assignment.

CHAPTER 7: The impact of PCS on primary classroom dynamics

This chapter describes teaching and learning in primary classrooms in 2007-2008, during the first year of the hard cap, when all Ontario school boards were required to ensure that 90% of all primary classes had 20 or fewer students and 100% of all primary classes had 23 or fewer students. The analysis draws primarily on data from field notes of classroom observations, focusing on the number and demographic distribution of students and which and how many students appeared engaged in learning; instructional strategies used by the teacher, including grouping, one-on-one work with students, whole class instruction, differentiated instruction and classroom management; the quality of student-teacher interaction, including higher- and lower-order teaching; student interactions; and use of other specialized staff.

Education aligned with “raising the bar” and “closing the gap” begins with the aspiration that each student, irrespective of social circumstances, has access to a quality education necessary to succeed in today’s world (Ontario Ministry of Education, 2008, p. 2). The intentions of literacy instruction take on a heightened significance in enabling children to become active participants in the co-construction of their learning context:

. . . the ability to use language and images in rich and varied forms to read, write, listen, view, represent, and think critically about ideas [...] the capacity to access, manage, and evaluate information; to think imaginatively and analytically; and to communicate thoughts and ideas effectively. Literacy includes critical thinking and reasoning to solve problems and make decisions related to issues of fairness, equity, and social justice. Literacy connects individuals and communities and is an essential tool for personal growth and active participation in a cohesive, democratic society (Ontario Ministry of Education, 2008, p. 6).

Acknowledging student background experiences and knowledge means giving weight to “children’s prior knowledge and experiences, in recognition of the richness of children’s backgrounds and cultures” (Ontario Ministry of Education, 2003a, p. 13).

In this chapter, we describe applications of the provincial government’s Literacy and Numeracy Strategy and other Ministry of Education-supported instructional strategies we observed, from basic to more skilled. Implementation of new teaching strategies is a process that takes time to understand, practice, and see its impact on student learning, particularly when teachers attempt to work differently with students with diverse learning needs. We believe that more teachers can extend and deepen their capacities to meet the learning needs of diverse students given time, professional learning opportunities and teaching conditions that support them. Our observations suggest that primary class size reduction supports teachers’ use of instructional strategies indicated by the Literacy and Numeracy Secretariat (LNS) and there are promising signs of teachers’ greater knowledge of, and skills in meeting, students’ varied learning needs.

Literacy strategies in practice

The first four years of the PCS implementation process were a time of capacity building for primary level education. As this and the following chapter suggest, PCS appears to provide supportive conditions for the implementation of new ministry and board initiatives, particularly with respect to the pedagogical goals of the Literacy and Numeracy Secretariat.

In general, there was much evidence of recent literacy initiatives at the primary level. Primary classes provided children with exposure to a rich language environment. In almost every classroom, we observed blackboards converted to “word walls” in order to maximize literacy

display space, replete with word lists grouped thematically (e.g., numbers, days of the week, seasons, colours) or in terms of common phonemes. Teachers often dedicated “literacy blocks” of at least half a day to language-specific activities, and in several classrooms literacy activities were integrated into problem-solving in math, science and the arts.

Many primary teachers told us that smaller primary classes meant more time to help individual students experiencing learning difficulties with pre-literacy, pre-numeracy or reading/writing/listening/speaking/visualizing. Individualized support often took the form of teachers or teaching assistants circulating around the classroom during individual seatwork to help students with basic decoding, the mechanics of writing (scripting), calculation and comprehension.

With emergent readers in JK, SK and Grade 1, instruction often focused on explicitly teaching foundational skills such as phonemic awareness, or supporting students to implement explicit reading strategies. With early literacy students who were beginning to acquire an awareness of sounds and their correspondence with the written form, teachers used individual strategies such as tracing the student’s finger over the letters as they read aloud, scribing for the students, reading the questions orally for students, or directing students’ attention to letters, words or numbers posted in the classroom. These activities emphasize a focus on form first and basic, denotative meaning as connected with form. Activities often included pencil and paper exercises that required students to produce predictable “correct” responses to closed questions, usually so that little teacher involvement would be required, thus enabling her to focus attention on helping other members of the class instead.

Several specially trained teachers had been able to implement programs of the form of Reading Recovery, GB+ or Christian Boyer’s explicit teaching, where children were supported in intensive, focused, teacher-guided practice in acquiring and applying grammatical rules. In their interviews, they made clear that the smaller classes made the difference in their ability to carry out these activities effectively. During group learning, teachers drew on such strategies as “read aloud” sessions where the plenary would read a chosen text simultaneously, for example, printed on a flip chart. In such activities, the smaller group enabled the teacher to be more aware of, and to encourage, each student’s particular participation. Similarly, with more advanced readers, many teachers reported being able to implement such strategies as guided reading for the first time. The new conditions of teaching and learning often allowed for a dedicated location where the teacher could interact with one or a few students while the others worked independently on other activities. Teachers reported that the degree of individualized support had increased significantly with the reduction in primary class size.

In terms of oral communication, children in the early years were often provided with opportunities during “circle time” to recount recent personal experiences, and were encouraged to develop vocabulary and pragmatic skills such as turn-taking and politeness. In some contexts, children were encouraged to share their ideas or responses to texts read by the teacher, sometimes explicitly referring to “text to text” and “text to self” connections. Such instructional strategies encourage students to derive deeper meaning from what they read.

The process of delivering literacy instruction appeared to vary according to school boards’ overall orientation toward literacy learning, class composition, teacher personality, teacher’s prior experience with the particular grade level, single versus combined-grade class, and the perceived ability levels of the students. Although teachers may have gained awareness of other more student-centered or student-directed approaches to literacy instruction, not all teachers were implementing these approaches in practice. Many newer teachers and some more experienced teachers reported that they were interested in trying student-centered, student-directed approaches during class activities but were concerned that they would lose control of the class, even with a smaller class, without the structure of teacher-directed, teacher-

centered approach. Some of the classes we observed were highly teacher-directed and teacher-centered.

In our observations, teachers tended to incorporate fewer opportunities for differentiated instruction (i.e. student-centered, student-directed learning) in classes and schools with students from lower income, racial minority and immigrant backgrounds. In their interviews, teachers described such students as less academically able, and their instructional strategies emphasized discrete skills associated with the transmission of basic facts and concepts rather than providing students with opportunities to develop higher order skills, even when working with small groups of students. In such classes, work was more often organized in terms of conventional paper-and-pencil activities, and teacher support emphasized the production of “correct answers.” Even when seating arrangements were configured such that students would sit together in teams, the emphasis was on individual work: teachers’ directions emphasized sharing resources and motivating one another to stay on-task and to complete seatwork more quickly. In classes where teachers expressed concerns about disruptive behaviour, students appeared to have fewer opportunities to engage in learning processes outside of the more conventional teacher-directed, highly-regulated individual activities generating predictable responses.

A commonly observed pattern was one of whole-class activities followed by individual seatwork. In combined-grade classes in several schools, teachers would teach the same lesson to both grades, and then alter the workload or expectations for each grade to reflect a strict division between the grades. For example, a teacher would require the Grade 1 students to write five sentences and to check their work with the teacher, but to require 10 sentences of the Grade 2 students, with the Grade 2 students proofreading each others’ work instead of relying on the teacher to do so; in some cases, the Grade 2 students were encouraged to help the students in Grade 1. Students considered to be “stronger” were often given the responsibility of helping “weaker” students, with the supposition that the arrangement would be mutually beneficial, providing stronger students with the reinforcement of teaching others and providing weaker students with needed explanations framed in the accessible terms of students’ own words, especially when the teacher was occupied with another group of students. While such instructional strategies may help teachers manage a class with multiple learning goals, they have a tendency to restrict students’ focus to the sequence prescribed by the curriculum rather than promoting more exploratory learning. In Grade 3 classes, instruction became particularly teacher-directed and teacher-centered as the Educational Quality and Accountability Office (EQAO) testing period approached, particularly in Ontario Focused Intervention Partnership (OFIP)-designated schools where staff felt particular pressure to demonstrate improvements in assessment results.

In other cases, we observed classes where the emphasis was on communicating meaningful ideas in an authentic context of production and reception where critical and creative thinking framed the use of language. Support came from both teacher-facilitators and students working collaboratively. In such contexts, teachers took opportunities for one-on-one work with children, to engage them in substantive discussion framed from the child’s standpoint and arising from the child’s unique learning style, interests and background knowledge. With differentiated instruction, interactions were destined to highlight students’ participation in the co-construction of knowledge and ways of knowing, and teacher-student interaction served informally as diagnostic evaluation to facilitate the ongoing modification of student activities. This focus tended to occur in cases where classes focused on process learning and were not facing the imminent pressure of EQAO testing. (See the side box for an illustration of student-directed, student-centered activity in a Grade 3 class.)

Illustration of student-directed, student-centered activity in a Grade 3 class

The class described below exemplifies an environment where students are intellectually challenged to apply concepts to create physical constructions that could take a number of possible forms as discovered and created by the students themselves rather than working toward a solution pre-determined by the teacher. Students are generally relaxed, and when one student becomes anxious (this is, after all a test!), both teacher and other students stop what they are doing to provide support and encouragement.

The class is comprised of fourteen students (6 girls, 8 boys); the majority white, one Indian girl of Indian heritage and a boy of Somali background, one girl identified as having ADHD and learning difficulties whose behaviour has changed dramatically with the calmer environment of a smaller class and where she is much more integrated socially and academically; there is also one boy with special needs who has difficulty with fine motor skills activities. The activity involves constructing a house of students' own design that would withstand the effect of wind and a weight of 100 grams. During recess, the teacher has set up a resource table to one side of the classroom where she has laid out various supplies, including glue sticks, 6 bottles of glue (thus requiring sharing and collaboration among the 14 students), wooden stir sticks, brochettes, straws, toothpicks, and plasticine. She distributes cardboard to each student to use as a base for the structure. The teacher reassures the students that she will let them go to look at the materials before they begin the test. The teacher explains the challenge—that each student will plan a design for a structure that, given the principles of force that they have studied, should be able to withstand a mass of 100g, which she later distributes to each child individually so that they can feel how heavy it is, as well as exposure to “wind” from a hairdryer. The teacher provides a handout to all students, which she reads aloud while the students follow. The tone of the classroom is relaxed. The assignment is such that the children must first detail their intended project accompanied by a detailed draft illustration, and that when they have completed this step and have answered a few preliminary questions about the principles underlying the project, they may proceed to the construction phase. During the construction phase, the students work together, yet each on his or her individual project, sharing materials. Unexpectedly, one girl's construction collapses and she grows anxious and upset. Other students in the class leave their projects and come right to her assistance, offering comforting words and gestures, which apparently is a familiar response in this classroom. The teacher joins them and helps the girl start a different strategy, emphasizing that she would help her more the next day and that there is no pressure.

Teacher familiarity with children

Teachers commonly reported that they knew the children better as a result of the smaller class. In the French-language context, small classes have long been a characteristic (and students have often had the same teacher multiple times throughout elementary school), facilitating teacher-student familiarity has advantages such as a teacher's expectations being clear to the children, and a teacher's ability to assess student learning and to adapt teaching and learning conditions to reflect the particular needs of each child.

Primary teachers unaccustomed to small classes noted that they felt better able to monitor children's activities during work time, compared with larger classes where student behaviour might go unnoticed for a longer period of time. There may also be benefits in terms of child safety. For example, in one context where students and teachers were rehearsing a lock-down drill, smaller classes were seen by teachers as important to ensuring quick emergency response

to account for all children. Similarly, teachers found it easier to keep track of young children leaving the classroom to line up in the hallway to use the washrooms and to supervise students on class excursions outside of the school.

In some contexts, differentiated instruction was driven by students' ideas about what counted as important. Classes of this sort were dramatically different in the processes and products emerging from student-student and student-teacher interactions. Students worked together on open-ended projects of their own invention (e.g., designing a set for the "reader's theatre" performance of a particular text) such that their pooled talents resulted in mutual aid and collaborative learning. Students pursued more open-ended activities each at their own pace, according to their preferred learning style and using their own original ideas, drawing on their background knowledge and having recourse to multiple resources, including other students, the teacher and, periodically, also a resource teacher.

PCS resulted in teachers having more time to chat one-on-one with children. As a result, teachers noted that they were able to gain a better understanding of students' lives outside of class that could help them to support students better in class. In most cases, teachers were able to apply this understanding to guide children into more "classroom-appropriate behaviour" suitable to the values and structures of the classroom. Unfortunately, teachers sometimes interpreted the information that children shared about their home lives in a pejorative manner to reinforce stereotypes rather than to develop greater understanding that could be incorporated into teachers' own instructional strategizing. The opportunity afforded to teachers by PCS to learn more about their students' lives outside the classroom does not always automatically serve to bring teacher, student and instructional strategies closer together. Teachers may need more time and more targeted professional learning in order to recognize what they can do in terms of their own interactions with students from backgrounds and situations that differ from their own and with which they may be unfamiliar.

Special education

A notable change in relation to PCS was the degree of individualized instruction provided to students identified as having special education needs who were in regular primary classes, especially students identified as having learning difficulties in reading and writing. PCS appears to support provincial initiatives dedicated to the enhancement of resource support for students identified as having special educational needs.

Generally, teachers perceived PCS as a means of providing more intensive individual support to "at risk" children in the interests of improving academic achievement, promoting positive social and affective development, promoting school retention and school success, and creating social situations more conducive to learning through the increase in positive interactions valuing each child's contribution to classroom life. In some cases, PCS was organized at the board or school level with the understanding that while primary class size was to be implemented uniformly, resources should be allocated to address the needs of children considered as having special needs in an attempt to close the achievement gap. In particular, the initiative applied to intervention in the case of students seen as having learning difficulties and behavioural problems. In situations where most students are from high socio-economic (SES) backgrounds, the number of children per class requiring intensive individual support tended to represent one-fifth or less of the class, while in low-SES schools, the proportion of special needs children was significantly higher and schools struggled to create student-teacher ratios that were low enough for individualized support to make a difference.

Teacher-directed classes tended to correspond with a greater attention to the importance of special education, especially the early identification of children with special learning needs and the provision of individualized support. Teachers and principals in several settings

indicated that a class of 20 made it easier to support students identified as having special educational needs within the regular class. In some cases, the number of children identified as having special needs corresponded with an estimated 10-15% of students. Further analysis would be required to assess whether smaller classes contributed to an increase or a decrease in the identification of children with special needs. Some teachers reported that, as a result of PCS, they were able to begin the process of having students with special education needs formally identified earlier in their school trajectory because of the increased opportunity to observe and document child development and evidence of learning or learning difficulties.

In the French-language school context, the small groups enabled by PCS in preschool and early primary were viewed as essential to facilitate the implementation of early language support to meet children's language acquisition, a process seen as instrumental to primary school success and to the retention of children in French-language school boards. Some teachers described scenarios where, with larger student-teacher ratios prior to PCS, students had not received adequate French-language support due to large classes in Junior and Senior Kindergarten or Grade 1 and, as a result, certain children had left French-language schools to transfer to schools offering immersion or English-language programs. Anecdotally, teachers felt that PCS had improved the transition to French-language schooling for non-French-language children or children raised in Anglo-dominant or other communities.

There was some evidence that inclusive education practices were beginning to appear in primary classes. In several contexts, Educational Assistants (EAs) worked with all students and not only students identified formally or informally as having special education needs, especially in an efforts not to stigmatize such children—in other words, to normalize the need for assistance as applying to all students rather than simply certain designated students. In other instances, EAs and teachers collaborated in lesson planning and sometimes switched roles so that the classroom teacher would work with children identified as having special needs while the EA would work with the regular class.

In this sense, the sort of differentiated pedagogy afforded through special education services facilitated by PCS emphasizes the achievement of common grade-level learning objectives rather than individualized objectives particular to each child.

Combined-grade classes

PCS did not appear to impact the common pedagogical assumption that grade-level and age are equivalent. In some cases, teachers understood their class populations as inherently multi-level and heterogeneous, even beyond the semblance of homogeneity created by the same-grade grouping. In some instances there was evidence of the use of multi-level classes as a mechanism to provide children with review or enrichment support according to the lower or higher-grade complementary curriculum most appropriate to their level of performance within the combined-grade class. In some cases, cross-grade grouping was used in team-teaching sessions, for example, Grade 5 students helping SK students with reading or activities requiring fine-motor skills, or older students presenting plays to younger students. In some contexts, where school personnel perceived students to have especially high learning needs, there was a conscious attempt to refrain from combining primary and junior grade levels in the form of the Grade 3-4 combination.

In some schools, the creation of combined-grade classes, grouping high-performing students with students of the next grade level, appeared to be a common practice. This practice could reinforce existing distinctions between “strong” and “weak” students through distinct groupings. In these cases, students considered to perform at lower levels, especially in reading, writing and math were retained in single-level classes or in combined-grade classes with students from the previous grade level to facilitate content review. While other factors such as

teacher-student and student-student dynamics also played a role in the establishment of class lists, the creation of classes in conformity with the PCS policy appears primarily to reinforce a developmental model of students based on measures of student performance in literacy and numeracy skills and maturity.

Space and instructional resources

PCS had some impact on the types of activities carried out in classes relative to changes in resources. Frequently, primary classrooms—with fewer students and thus fewer desks—had more free space. Teachers were generally pleased to have additional classroom space because it meant that space could be utilized in a number of different ways which allowed them to engage in a variety of different grouping practices—especially important for children to have the luxury of working by themselves at a desk if they find that the small group arrangement to be overly distracting. Material resources generally appeared to be allocated in sufficient number, although in some settings that had fewer resources prior to PCS, teachers purchased supplementary classroom books and writing materials for the students using their personal funds.

Discussion

As teachers adapt to a new teaching and learning context organized around smaller groups at the primary level, and insofar as school actors have an increased opportunity to work collaboratively, PCS may represent a unique opportunity for the implementation of innovative pedagogical practices to exploit the heightened opportunity for individualized instruction, which for many teachers constituted the most salient aspect of the policy. Some teachers remarked that the implementation of recent ministry and board initiatives seemed to be more feasible in the context of the smaller classes—with a smaller class, they felt more inclined to attempt new strategies associated with their recent professional learning in differentiated pedagogy, balanced literacy, inclusive education, integrated curriculum and other ideas. Teachers have begun to exploit the potential of small-group oriented activities, working in centres and in such contexts as reading circles. These steps towards new types of activities represent the possibility of engaging a broader spectrum of intelligence through teaching strategies geared towards a wider range of ways of knowing and knowledge such as interpersonal or spatial intelligences.

The smaller class has the potential to move primary teaching and learning toward more child-centered, child-directed communicative, exploratory instruction. With this instructional focus, classroom activities encourage students to create learning content and process along with the teacher (i.e. co-construction). In moving towards the implementation of pedagogical initiatives in literacy and numeracy, inclusion, and language acquisition, educators must ensure the same quality of education for all students but which allows for a variety of learning styles, background knowledge, interests, trajectories and multiple intelligences in substantive ways.

CHAPTER 8: Reports from teachers on teaching and learning

This chapter, in conjunction with Chapter 7, examines how teaching and learning have changed with the implementation of primary class size reduction. While the previous chapter drew primarily on *researchers'* observations of classroom practices, the emphasis in this chapter is on *teachers'* perceptions of the quality of conditions for teaching and learning, drawn from surveys and interviews in each of the study schools.

Teachers' responses uniformly suggest an improvement in teaching and learning conditions in the primary grades in the past year in ways that may be directly attributable to PCS, or at least to which smaller class sizes likely play a contributing role. Teachers also report that junior and intermediate teaching and learning conditions in these same schools differ from those of primary teachers and, in their estimation, may have actually reduced in quality.

The chapter is organized to first describe the conditions of teaching and learning in primary grades since PCS implementation in terms of the following: teachers' perceptions of students; instructional practices; teachers' perceptions of selected working conditions; perceptions of the quality of their working relationships; and perceptions of their overall success since PCS implementation.

Tables present primary and junior/intermediate teachers' survey responses. Following each table is a summary and elaboration of findings on primary teaching and learning conditions.

Teachers' perceptions of students

Primary teachers universally reported that many of their students appeared to be benefiting from smaller class sizes. As Table 8-1 shows, over half of the teachers observed fewer discipline issues (52%) and noted that the quality of students' peer relationships had improved (54.3%). Two-thirds of teachers believed that students were more engaged in learning than in the past (66.1%). While the largest group of primary teachers reported no changes in terms of students' language challenges or in their learning challenges overall, over one-third noted fewer serious language challenges (37%) and learning challenges overall (33.6%).

Table 8-1. Teachers' Perceptions of Students Since PCS Implementation

Item	Primary	Junior/Intermediate
Discipline issues N/A ³	9.4%	18.7%
Less	52%	25%
Same	40.7%	39.7%
More	7.3%	26.4%
Language challenges N/A	12.3%	26.4%
Less	37%	19.7%
Same	55.5%	55.7%
More	7.6%	24.6%
Learning challenges N/A	8.0%	20.9%
Less	33.6%	20.3%
Same	52%	39.1%
More	14.4%	40.6%
Quality of relationships among students N/A	4.3%	23.1%
Worse	0.8%	18.5%
Same	45.0%	63.1%
Better	54.3%	18.5%
Engagement in learning N/A	8.7%	19.8%
Less	8.1%	30.3%
Same	25.8%	40.9%
More	66.1%	28.8%

In interviews and in their written comments, teachers said that smaller classes allowed them to diagnose and respond effectively to students' learning challenges. Many made comments that they perceived students as coming to school with greater needs than ever. A Grade 1 teacher in a southern Ontario board wrote: "Although class size is smaller, the behaviours and needs of the students still exist (and are becoming greater) so teacher time is still focused on those particular students."

Most comments, however, emphasize the benefits of smaller classes. A Grade 3 teacher in a suburban school wrote: "I can usually get to all of the students when they are experiencing difficulty."

According to another Grade 3 teacher in a large school in a different board, "I can stay on top of everything more. I *know* how they are doing in all areas. There is no place to 'hide' in a small class." A resource teacher at the same school wrote:

³ Teachers had a choice of marking "Not Applicable" as a valid survey response. Interview responses suggest that, in at least some cases, primary teachers taught smaller classes even prior to 2006-07. In some cases, junior and intermediate teachers believed the survey was really focused on primary teachers' experiences. Other teachers said they did not feel comfortable comparing the present school year to the previous year because this was their first year in this school and/or this grade level.

The "Less," "Same," and "More" percentages represent the proportion of responses other than N/A.

The number of returned surveys was 138 for primary and 91 for junior and intermediate teachers—a total of 229. Return rates ranged from about 40% to 100% across the 24 schools.

Special needs students are more 'included' in these 'reduced' classes. Teachers are able to program differentiated instruction and planning to address some of the individual needs of ALL the students in their class.

This perception is reinforced by a resource teacher at a small, low-SES school who said: "It's far easier for us to integrate children with really complex needs into a classroom where there are less demands on the teacher." A resource teacher at another school with similar characteristics said that, in smaller classes, she was able "to focus on learning disabilities, autistic students because the teacher can do more with low academic achievers."

Teachers also reported that students were calmer than in the past, which they attributed to easier and more frequent access to adult attention, and attributed students' better peer relationships to the reduced competition for interaction with adults.

Instructional practice since PCS

Primary teachers reported significant increases in instructional strategies associated with improved literacy learning, shown in Table 8-2: more small group work (73.8%), more variation in types of student groupings (69.5%), more variation in types of activities (74.6%) and more differentiated instruction (71.5%). The use of these instructional strategies is consistent with our classroom observations. These practices are most likely attributable to the effects of professional learning opportunities provided by the province's Literacy and Numeracy Secretariat. At the same time, teachers' interview responses suggest that smaller class sizes were an enabling condition. In interviews, teachers reported that reduced class size enabled them to pay attention to and reflect upon the kinds of learning strategies that might represent effective responses to their students' learning challenges. They also attributed the space freed up in their classrooms by smaller numbers of students to their comfort and sense of success in managing multiple activities across a room simultaneously.

Table 8-2. Teachers' Perceptions of Instructional Practices Since PCS

Item	Primary	Junior/Intermediate
Small group work		
<i>N/A</i>	4.3%	18.7%
Less	--	7.1%
Same	26.2%	54.3%
More	73.8%	38.6%
Different types of student groupings		
<i>N/A</i>	5.8%	20.9%
Less	--	4.5%
Same	30.5%	49.3%
More	69.5%	46.3%
Different types of activities		
<i>N/A</i>	4.3%	18.7%
Less	.8%	5.9%
Same	24.6%	45.6%
More	74.6%	48.5%
Differentiated instruction		
<i>N/A</i>	4.3%	18.7%
Less	--	5.8%
Same	28.5%	43.5%
More	71.5%	50.7%

Teachers' working conditions

While there was some variation in both directions, many primary teachers reported improved working conditions. Table 8-3 below shows that nearly one-quarter (24.3%) reported greater access to, and interaction with, specialized staff. Field visits to schools revealed that resource teachers and literacy coaches devoted more attention to primary than to upper-grade classrooms, and that primary teachers were more likely to team teach or otherwise interact with resource teachers in their classrooms. Well over two-thirds of primary teachers who returned the surveys (70.8%) reported improvements in the quality of their physical classroom space. Few had actually moved to new classrooms, but many primary teachers reported that with fewer children and fewer desks required, they were able to utilize existing space more creatively and flexibly than in the past.

Table 8-3. Teachers' Perceptions of Working Conditions Since PCS

Item	Primary	Junior/Intermediate
Teachers work with specialized staff		
<i>N/A</i>	7.2%	17.6%
Less	11.3%	23.2%
Same	64.5%	59.4%
More	24.2%	17.4%
Time put into teaching-related activities		
<i>N/A</i>	5.8%	18.7%
Less	6.3%	4.4%
Same	67.5%	51.5%
More	26.2%	44.1%
Quality of physical classroom space		
<i>N/A</i>	4.3%	18.7%
Less	3.8%	48.5%
Same	25.4%	25.0%
More	70.8%	26.5%

Table 8-3 also reveals that slightly more than a quarter of the primary teachers (26.2%) reported that they were putting more time into teaching-related activities. This seems counter-intuitive, since no primary teacher interviewed described work intensification or burnout, and many noted that less time marking meant more time spent developing new teaching activities. Teachers' comments suggest that other factors are increasing their workloads beyond their time with students. In particular, the combination of students "with more complex learning, social, emotional and physical needs who are all trying to be integrated into our classrooms" and a greater likelihood that primary teachers have combined-grade classes than in the past add the complexity of program planning.

A learning support teacher in an OFIP school observed: "The spectrum has increased. You get a split [combined] grade class, you get a wider range of students of all abilities in there. So you've got more to program to." A Grade 1-2 teacher in a low-SES school in another board wrote: "Lots of special needs and multi-level grouping requires a lot of extra planning."

Quality of working relationships

Most primary teachers did not identify much change in the quality of their relationships with the principal or peers, but those who did reported improved professional relationships (24% and 32.6% respectively), as shown in Table 8-4 below. Interviews with primary teachers and principals suggest that teachers appreciate principals' ability to ensure better quality working conditions, and in some cases primary teachers reported that discussions, planning and team teaching were increasing as a result of the emphasis and opportunities afforded by the combination of attention to literacy and numeracy and the reduction in class size.

Table 8-4. Teachers' Perceptions of Quality of Working Relationships Since PCS

Item	Primary	Junior/Intermediate
Quality of relationships between teachers and principal		
N/A	5.1%	22.0%
Less	1.6%	15.4%
Same	74.4%	70.8%
More	24.0%	13.8%
Quality of relationships among teachers		
N/A	5.1%	18.7%
Less	4.7%	24.6%
Same	62.8%	55.1%
More	32.6%	20.3%

Because resource teachers work across grade levels and observe variations in how teachers work with students and other adults, interviews with resource teachers were particularly useful in understanding how PCS might affect these relationships.

Several resource teachers across a number of boards commented that the more substantive relationships they developed with primary teachers were likely influenced by the opportunities afforded by the combination of the province's literacy and numeracy emphasis, inclusion of students with special needs and class size reduction for teachers' professional learning. According to a resource teacher in a school in Central Ontario:

Primary teachers I sense are more comfortable [than upper-grade teachers] with me, with my input or my suggestions about differentiating instruction or the learning or whatever. . . . I see more of a tendency for our primary teachers to be working together, and when we are setting up class lists for the following year I tend to see more talk, like everybody knows the kids better. And so there is a lot more collaborative problem solving I would say.

PCS was said in several contexts to have facilitated the work of professional learning communities (PLCs), enabling them to better examine the needs of particular students. In one French-language public school, in reflection of the recommendations made in *A Guide to Effective Instruction in Reading, Kindergarten to Grade 3* (Ontario Ministry of Education, 2003b), teachers worked as a professional learning team, meeting weekly to track the achievement of each child in the school on a large confidential chart relating the results of formal and informal evaluations, coded for boys versus girls, thus tracking school improvement and focusing on the school project of improving writing communication, discussing strategies for better addressing student needs. One of the legacies of these meetings became a collection of resources that could be shared among staff members. In another school with fewer same-grade classes, professional learning communities support an ongoing process of critical teacher reflection with respect to best practices. In another context, the PLCs resulted in dividing curriculum development tasks among teachers such that one person would develop curriculum for a specific area to be later implemented by all teachers of the same grade.

Teachers' perception of success

Table 8-5 below shows that primary teachers reported improvements in the quality of their relationships with students and in their overall feelings of success (72.3% and 72.1% respectively). Interviews with primary teachers reflected teachers' greater knowledge of and sense of connection with students and greater satisfaction in meeting students' needs. Beyond their own one-on-one interactions, a number of primary teachers reported spending more time and energy solving problems on behalf of students with other adults in the school and improvements in the quality of students' overall emotional, physical and social well-being, as well as their academic success.

Table 8-5. Teachers' Overall Perception of Success Since PCS

Item	Primary	Junior/Intermediate
Quality of relationships between teacher and students		
<i>N/A</i>	4.3%	23.1%
Less	2.3%	15.4%
Same	25.4%	42.9%
More	72.3%	13.2%
Overall feeling of success		
<i>N/A</i>	5.1%	19.8%
Less	4.7%	30.9%
Same	23.3%	41.2%
More	72.1%	27.9%

Junior and intermediate teaching and learning

In interviews conducted with administrators and teachers, and in the survey responses of teachers across the elementary grades, large class sizes were identified as serious challenges for teachers and students in junior and intermediate classes.

On average, classes in Grades 4-8 did not increase in size (and, in fact, appear to have decreased slightly across the province) in the period between 2003-04 and 2007-08. Of the 24 schools in the eight boards we visited, results were mixed—upper-grade classes in one board declined in size; upper-grade classes in four of the boards were mixed (some declined, some increased, some stayed steady); in two boards, the schools were high to start with and remained high; and in the last board, upper-grade classes began high and rose higher.

In the field visit sample, as described in Table 8-6 below, 12 of the 24 schools had junior and intermediate classes with larger numbers of students than the provincial average, and one-third of them had classes in the 30s (these numbers are in bold type).

Table 8-6. Class Size Ranges for Study Schools, Class Tracker Data for 2007-08 School Year

Board/School#	Primary (K-3)	Junior (4-6)	Intermediate (7-8)
1-1	18-23	26-27	27
1-2	12-20	25-26	30
1-3	12-20	24-26	26-27
2-1	13-18	19-21	21-24
2-2	16-20	18-24	27-30
2-3	19-22	--	--
3-1	19-22	23-30	--
3-2	17-20	26-29	--
3-3	18-21	27-33	--
4-1	18-21	26-30	23-24
4-2	18-21	23-24	24
4-3	18-22	20-26	27
5-1	17-20	24-27	--
5-2	18-20	0-18	26
5-3	17-20	25-29	--
6-1	19-20	26-29	27-30
6-2	20	22-30	28-30
6-3	19-21	21-27	27-33
7-1	14-17	19-23	24-26
7-2	14-18	17-24	--
7-3	19-20	20-25	--
8-1	13-19	24-30	--
8-1	18-20	20-22	--
8-3	18-20	25-29	--

In our field research sample, high junior and intermediate class sizes tended to occur in growing school boards, and in larger elementary schools. These actual class sizes are masked when officials concentrate on school board and provincial averages. On the ground, however, larger junior and intermediate classes in some schools and boards are difficult realities for students and teachers.

Class size appears to have some bearing on teachers' and principals' expressed concerns about junior and intermediate teaching and learning conditions. We do not know whether these concerns are primarily due to the very recent and obvious difference in class sizes at the primary level, or to other factors, such as the challenges upper-grade teachers faced in attempting to implement instructional strategies associated with the Literacy and Numeracy Strategy, or whether a combination of factors have redirected limited instructional resources toward primary and away from junior and intermediate grades. At the same time, the trends in upper-grade teachers' responses are worth examining.

Perceptions about students

Compared with primary teachers, upper-grade teachers were more varied as a group in their assessments of their students (see Table 8-6). Sizeable proportions (nearly 40% to nearly two-thirds) reported no change in student characteristics associated with readiness to learn. Upper-grade teachers who did report changes in student characteristics were more likely to note that students faced greater challenges than prior to primary class size reduction than that students who were better equipped for learning—they reported more discipline issues (35.3% versus 25% for fewer discipline issues); more language challenges (24.6% versus 19.7% for fewer language challenges); and more learning challenges (40.6% versus 20.3% for fewer learning challenges). They reported slightly less student engagement in learning (30.3% versus 28.8% for greater engagement); the same proportion reported better and worse relationships among students (18.5% each).

Since primary class size reduction had only just begun, it is obviously too early for upper-grade teachers to observe any potential improvements in students' readiness to learn. At the same time, teachers' perceptions of students as somewhat more challenging overall may also reflect the ways in which classrooms with more students create greater difficulty for student learning. For example, a Grade 6 teacher in an upper-middle-class school wrote, "Junior class size is huge. The students aren't as well prepared for this sudden increase (therefore less attention). Behaviour problems, work space and general classroom management is a huge problem." Interviews with resource teachers in particular frequently characterized upper-grade classes as the mirror opposite of primary classes, in ways that will be described in the following sections.

Instructional practices

As a group, upper-grade teachers were most likely to report that their instructional practices had not changed in the past year. Still, sizeable proportion did report more frequent use of instructional strategies geared toward literacy and numeracy learning, although not as widespread as reported by primary teachers (see Table 8B). Junior and intermediate teachers reported carrying out more small group work (38.6% versus 73.8% primary), more types of student grouping (46.3% versus 69.5% primary), more types of activities (48.5% versus 74.6% primary), and more differentiated instruction (50.7% versus 71.5% primary). The changes may reflect adoption of strategies disseminated provincially by the Literacy and Numeracy Secretariat.

The difference between rates reported by upper-grade and primary teachers may be attributed to a number of factors, including an absence of opportunities to plan and carry out these strategies in larger classes and more crowded classrooms. A Grade 5-6 teacher in a middle-class school wrote, "With larger junior class sizes, there is less student directed learning and much more teacher directed. With larger junior classes, group work is difficult."

Working conditions

Some junior and intermediate teachers reported changes in their working conditions (see Table 8-3). While most reported that access to specialized staff had not changed, some (23.2%) reported less access. A sizeable proportion (44.1%) reported an increase in the time they put into teaching-related activities. Nearly half (48.5%) reported poorer quality of classroom space than in the past. The increase in time spent on teaching activities may be attributable to larger class sizes, in the sense that many upper-grade teachers commented on the additional time required to assess student work. The decrease in classroom quality may be attributable, to some extent, to some movement of upper-grade classes into portables to ensure primary students could be housed in regular school buildings. To some extent, it seems likely that the reduction in classroom space quality is a function of increased numbers of students occupying existing classroom space. Many resource teachers noted that, in larger

classes, students “in the middle” in terms of academic ability more readily “fell through the cracks” because of the challenge for teachers of ensuring sufficient attention across the larger number of pupils. Upper-grade teachers and resource teachers reported that more crowded classrooms also resulted in more traditional instructional strategies because the difficulty of re-arranging furniture out of a standard row configuration made it harder for teachers to move around from student to student, and reduced available room for activity centres.

Professional relationships

Interviews suggested possible tensions between upper-grade teachers and other adults in their schools because of the dynamics associated with primary class size reduction (see Table 8-4). A typical comment was: “They know primary class size reduction is a good thing. But they think it should be for everyone and they resent that their class size is going up.” In their survey responses, most upper-grade teachers did not report significant changes in the quality of their collegial relationships, but those who did were slightly more likely to report less, rather than more, quality. Some reported poorer quality relationships with the principal (15.4%) and nearly one-quarter (24.5%) reported poorer quality relationships among teachers.

Overall success

Finally, some junior and intermediate teachers reported a reduction in the quality of their relationships with students (21.5%) and a reduction in their overall feeling of success (30.9%) (See Table 8-5). While sizeable proportions reported no change or improvements in these areas, more reported deterioration than improvement. While there is no way of telling whether this is directly attributable to PCS, the pattern of response across the 24 schools suggests some degree of common experience among upper-grade teachers.

Combined-grade (“split”) classes

In interviews, teachers who taught combined-grade classes, whether in primary and/or upper grades, identified several challenges. Coverage of more than one curriculum was one factor. Teaching combined-grade classes where one of the grades involved EQAO assessments at the end of the school year was particularly difficult, according to these teachers, since much time and effort was put into preparing students to take the exams. On the Class Tracker, schools in four of the eight boards reported a consistent use of combined-grade classes across all grades; and schools in a fifth board reported combined Grade 3-4 classes even while combined grades did not appear to be a consistent rule.

Discussion

In the most basic and literal sense, primary class size reduction appears to have supported goals of improving teaching and learning in the primary grades. Teachers perceived fewer learning challenges among their students as being insurmountable. They claimed that smaller classes allowed them to have made significant changes in instructional strategies. They reported that the quality of classroom space had improved—a claim that seems to have more to do with less crowding than to actual moves from one classroom to another. They were slightly more likely to perceive their working relationships with other teachers and administrators as having improved than as having declined in quality. And, finally, they expressed a greater sense of success and of more positive relationships with their students.

At the same time, there appears to be a relationship (or at least a correlation) between the implementation of primary class size reduction and other concurrent provincial initiatives and a reduction in the quality of conditions for teaching and learning in junior and intermediate classes in elementary schools. While reports of work intensification, classroom crowding, and difficulty meeting the educational needs of more students may be little more than the result of

junior and intermediate teachers' sense of deprivation in comparison with primary teachers, there may be deeper and more salient dynamics at work. Research on school reform suggests that when new programs target only some of the students in a school, can be unintended, surprising, and negative consequences for students and teachers outside of the target cohort because of the inter-connectedness of many school processes and the limited nature of school resources (Finley, 1984; Muncey & McQuillan, 1996; Siskin, 1994). There may, in other words, be unintended consequences for the conditions of teaching and learning in Grades 4 through 8 in elementary schools as the result of primary class size reduction.

There may also be unintended consequences in terms of a reduction in the availability of specialized support staff. Our field visits reveal that some schools with a limited resource base prior to PCS, particularly schools that were not allocated additional teachers to accommodate the creation of new primary classes of 20 or fewer children (small schools, or schools not considered to be as high a priority for intervention as other sites), had to reassign a resource teacher to a primary class, thus resulting in one fewer resource teacher. In some cases, this meant that a school lost its resource teacher. Schools sometimes compensated for this by placing that special education-trained teacher in a primary class considered to be "high needs." In the French-language context, this often meant a JK class where language acquisition was a significant issue where there were a high number of children non-conversant in French. In one French-language context, the school was able to compensate for the loss of a special education teacher by using an ALF/PDF teacher hired part-time to work with both with JK and the primary grades, while also teaching French to junior grades which as a result of their higher numbers, were perceived as high need and requiring urgent attention.

The research is clear that working conditions are highly significant to the quality of teaching in both direct and indirect ways—that is, in terms of teaching ability and teacher engagement or motivation (Leithwood, 2006). Planning, reflecting, interacting with and programming on the basis of knowledge of individual students; having access to human and material resources; experiencing the moral and practical support of other educators and parents; having access to the opportunities for school-based, work-related professional learning afforded by time and trust are all directly relevant to teachers' instructional ability and motivation. In many of the schools, principals and teachers reported on junior teachers' desires to move into primary teaching assignments. At one school, the principal reported that several "of the best" junior teachers had decided to move into school board positions or out of teaching entirely because of their unhappiness with the conditions of teaching in junior grades. The California Class Size Reduction initiative described in Chapter 2 illustrates the unintended and negative consequences of teacher mobility for populations of students going to school in less desirable teaching environments (see also Quartz et al., 2005).

The class size reduction research has provided some evidence that gains in learning achieved during the formative primary grades persist over time. This finding has been interpreted in many jurisdictions, including Ontario, as, suggesting that it less crucial to reduce class size in later grades. Whether this is the case for all student populations is less clear.

Whether combined-grade classes are a positive, negative, or insignificant factor in terms of their impact on instruction is debatable. Like other learning strategies that purport to improve student learning, the reality is likely to depend on the specifics of how they are employed by teachers. The near universality of teachers' discomfort with combined-grade classes suggests that many are unclear about how to work effectively with such student groupings.

CHAPTER 9: Parents' perceptions of primary class size reduction

This chapter presents comments and responses of parents of elementary school-aged children about their perceptions of their children's educational experiences since the implementation of PCS. To collect data from parents, we enlisted the support of People for Education, a parent led public education advocacy group with parent contacts across the province. As a result, 2,950 parents with representation from every school board in the province, both English-language and French-language, responded to an online survey.

Researchers tend to reach parents who are accessible and interested in participating in research because they are highly engaged in their children's education. While every school board in the province is represented, the nearly 3,000 parents whose perceptions provide the basis for this chapter are not necessarily representative of the entire population of Ontario parents. This might mean that, in comparison with the entire population of elementary school children, they are particularly knowledgeable about educational programs, have better (or worse) access to decision-making forums, and so on.

A second caveat in reading this chapter is that, while every item on the survey began with the qualifier, "Last school year (2007-08)," it is possible that at least some parents' responses reflect their perceptions of conditions during the current school year (2008-09). Some of the written comments begin, "This year, . . ." Because of this possibility, it is not appropriate to treat the parent data as if it exactly corresponds to the events to which teachers and school and board administrators responded during the 2006-07 and 2007-08 school years. More appropriate is to take the parent data as reflective of their general attitudes toward PCS.

The first analysis explored in this chapter is a comparison of the perceptions of parents of primary-grade children as compared with parents of children in junior and intermediate grades. The second and third analyses focus on the perceptions of parents of children in particular learning situations. These learning situations included children who were in combined-grade classes as compared with the entire student population, at the primary and then at the junior/intermediate level; and children who worked with educational assistants and resource teachers but who were placed in regular classes, again as compared with the entire student population, at both the primary and then the junior/intermediate level.

Table 9-1. Parents' Perceptions of Their Children's and Their Own Experiences During the 2007-08 School Year, Compared to Prior Years, in Primary as Compared with Junior and Intermediate⁴

Item	JK-Grade 3 parents	Grades 4-8 parents
My child experienced learning difficulties		
More than prior years	26%	27%
About the same as prior years	54%	55%
Less than in prior years	20%	28%
My child was engaged in learning		
More than prior years	29%	28%
About the same as prior years	56%	56%
Less than in prior years	14%	16%
My child experienced behavioural challenges		
More than prior years	20%	20%
About the same as prior years	57%	58%
Less than in prior years	23%	22%
My child had positive social interactions		
More than prior years	24%	23%
About the same as prior years	65%	66%
Less than in prior years	11%	11%
The teacher's knowledge of my child's learning needs and abilities		
Better than in prior years	29%	28%
About the same as prior years	54%	54%
Not as good as prior years	17%	18%
The quality of discussion with the teacher about my child's learning needs and abilities		
Better than in prior years	30%	28%
About the same as prior years	52%	52%
Not as good as prior years	19%	20%
The quality of discussion with the principal about my child's learning needs and abilities		
Better than in prior years	18%	17%
About the same as prior years	61%	60%
Not as good as prior years	21%	23%

Table 9-1 shows that, for each item, the majority of parents reported little change over the past while in their child's quality of school experience and in their interactions with teachers and principals concerning their child's learning needs and abilities. That is, at both primary and upper-grade levels, well over 50% of parents reported that they "did not notice any change."

⁴ Out of a total of 2,950 valid responses, 1,948 were parents of children in primary classes (JK-3) and 1,069 were parents of children in junior or intermediate classes (4-8).

There are very minor differences in the perceptions of parents of children in primary versus junior or intermediate grades. For most items, parents of primary-grade students reported slightly more positive experiences than parents of junior and intermediate-grade students.

Of those that reported changes, more parents of both primary and upper-grade students reported improvements than reported worsening conditions in terms of engagement in learning (29% or 28%), fewer behavioural challenges (23% or 22%), more positive social interactions (24% or 23%), teachers' improved knowledge of children's learning needs and abilities (29% or 28%), and better quality discussion with teachers about children's learning needs and abilities (30% or 28%).

The first item is the only one where parents' perceptions diverged more than very slightly between the two groups of students. Parents of primary students were more likely to report that their children had experienced learning difficulties than those who experienced fewer difficulties (26% versus 20%). Parents of junior and intermediate parents were very slightly more likely to report fewer learning difficulties than greater learning difficulties (28% versus 27%). These findings appear contradictory with concerns raised by teachers about challenges facing upper-grade students in larger classes.

Parents of both groups of students were more likely to report less satisfactory discussions with principals about the child's learning needs and abilities (21 and 23%) than that discussions with principals had improved (18% and 17%).

Parents across grade levels expressed similar concerns about PCS in several domains. One concern was the movement of children in and out of classes in the first few weeks of school in order to adjust class sizes to achieve the hard cap before the class size reporting date:

This change in order to comply with the new mandate and in order for the school to adhere to the hard caps meant 6 weeks of tearful nights, difficulty adjusting to new friends and her saying she didn't want to go to school.

A related issue was what parents perceived as movement of children from one class to another on the basis of numbers without adequate attention to program quality issues:

The inflexibility of the formula for class sizes seems to work against students by giving principals no way to take into account the ability of particular teachers to handle larger (in most cases) classes for the sake of matching students with appropriate teachers and with their peers.

While there are only minor differences between perceptions of parents of primary versus parents of upper-grade students reflected in the table above, the written comments suggested that there were differences that might be attributed to class size.

Parents of primary-grade children had many positive things to say about PCS:

Clearly see impact of increased focus on my child's challenges. Teacher quickly identified some mild reading and writing challenges and addressed them early in the year.

The staff knew my child's strengths and areas to improve and I think this was due in part to the smaller class size.

We're seeing more bullying at the earlier grades (kindergarten and grade one). Reducing class size . . . can help to allow the teacher more time to establish a stronger sense of community and belonging within the classroom which can, in turn, help to reduce the number of incidents of bullying.

A smaller class size would also mean more of a chance to establish a rapport with the parents to promote the best habits for learning. Communication with parents of how learning is done and what is learned is vital to provide continuity while acquiring the essential basic skills and associating or connecting their learning to real life.

These comments parallel those of teachers and administrators, as well as our own observations regarding the benefits of PCS—increased attention to individual students' learning needs and the social realities of the classroom. They also suggest the potential of PCS to improve support for student learning by enhancing opportunities for substantive teacher-parent communication.

A large proportion of parents' written comments reflected concerns about large classes at the junior and intermediate level, which they directly attributed to PCS:

Reduction of class size in Primary has made Junior and Intermediate classes too large.

As a result of smaller classes from JK to Gr. 3, there is not enough space and not enough resources to keep the class size down in the upper grades. My son was in a class of 34 children, 25 of them were boys. This made it very difficult for the teacher to provide any individual attention.

My child was in a Grade 4-5 split. The class size was over 30 (as it is again this year). The cap in the younger grades seems like a good idea, but the Grade 4-6s are paying for those lower class sizes. I strongly object to the idea that a Grade 3 child needs a class of 20 but a Grade 4 child is left to a class of 30 or more.

My child was in a split 5-6 grade class with 36 students.

These comments on the realities of large upper-grade classes parallel concerns expressed by teachers and administrators.

Table 9-2. Parents' Perceptions of Their Children's and Their Own Experiences During the 2007-08 School Year, as Compared to Prior Years in Combined Grade Classes

	JK-Grade 3 parents		Grades 4-8 parents	
	All	Comb. Grade	All	Comb. Grade
My child experienced learning difficulties:				
More than prior years	26%	27%	27%	30%
Same as prior years	54%	54%	55%	54%
Less than prior years	20%	19%	28%	16%
My child was engaged in learning:				
More than prior years	29%	31%	28%	24%
Same as prior years	56%	56%	56%	57%
Less than prior years	14%	14%	16%	20%
My child experienced behavioural challenges:				
More than prior years	20%	20%	20%	19%
Same as prior years	57%	57%	58%	57%
Less than prior years	23%	23%	22%	20%
My child had positive social interactions:				
More than prior years	24%	25%	23%	20%
Same as prior years	65%	64%	66%	68%
Less than prior years	11%	10%	11%	13%
The teacher's knowledge of my child's learning needs and abilities:				
Better than prior years	29%	31%	28%	23%
Same as prior years	54%	53%	54%	56%
Not as good as prior	17%	16%	18%	22%
Quality of discussion with the teacher about my child's learning needs and abilities:				
Better than prior years	30%	31%	28%	23%
Same as prior years	52%	50%	52%	53%
Not as good as prior	19%	18%	20%	23%
Quality of discussion with the principal about my child's learning needs and abilities:				
Better than prior years	18%	19%	17%	15%
Same as prior years	61%	60%	60%	60%
Not as good as prior	21%	20%	23%	26%

Table 9-2 shows that parents of children in *combined* primary grades are consistent with those of the entire primary-grade parent group. Their numeric responses, on the whole, are slightly higher than the entire population group: that is, parents of primary children in combined-grade classes are slightly more positive than the general population of primary parents for all of the items for which there were generally more positive responses; and their responses to the one item where there were reports from the general population of primary parents of greater learning difficulties is very slightly higher.

The responses of parents of junior and intermediate children in combined grades portray a somewhat different situation. Overall, these parents' perceptions pose greater difficulties than those of the entire population of parents of upper-grade children. While, like all the other groups, the majority of parents report that conditions were "about the same," they are more likely to report their children experienced more learning difficulties and had fewer positive social interactions. Nearly one-quarter (24%) report that their children are more engaged in learning, but this proportion is lower than that for any of the other student groups (29% for all primary, 31% for primary combined, 28% for all upper grades). In terms of their perceptions of their children's teachers, while roughly comparable proportions report "better" and "not as good" teacher knowledge of the child and quality of discussions with the teacher about the child, the satisfaction levels are lower than for any of the other student groups (23%, as compared with 30% for all primary, 31% for primary combined, and 28% for all upper grade). These findings suggest that parents of junior and intermediate level students perceive combined-grade classes to be challenging learning environments for their children and are on the whole less satisfied with educators' actions.

The largest proportion of written comments from parents across all grade levels express concerns about combined-grade classes. Some suggest that their children had positive experiences or at least experiences that caused no concern:

At this age the split grade has been useful to help the kids know what to expect from their classroom. In JK they have the SK kids to show them how things work. Then when they start SK they know how things work already and know that they are there to help the younger JKs learn the ropes. At this point they know the kids on either side of their own grade which seems to me to be a chance for teaching empathy.

Some parents believe that combined-grade classes are acceptable only under certain circumstance:

I do not like my children being in split grades unless they're with the higher grade level.

Many parents expressed concerns about combined-grade classes. Some of these comments emphasized the social difficulties they believe their children faced in classes with uneven numbers of students at one grade level in relation to another.

My child is in Grade 3 that is split with only four Grade 2 students. How is this an even split? The teacher has to teach a whole separate curriculum to 4 students – how silly is that?! Plus it takes time away from the Grade 3 students that may require extra support. What was the benefit of reduced class size again?

My child is a quiet student . . . He is now reading at below grade level where he wasn't before at our old school. I think he is struggling due to the fact that there is an uneven split (4 Grade 2 students in his class) forced upon the school by reduced class size.

A split grade [French Immersion] class with 17 Grade 3 students and four Grade 4 students – an absolutely useless administration of a school to come up with a split like this!

Another concern expressed by parents was their perception that their child's teacher could not teach effectively in a class with more than one grade level:

The varied abilities of the students in the 5-6 split meant that the teacher was teaching Grades 3-8. My child received very little individual attention as the teacher was

making sure that the students at the lower end of abilities were “catching up.” The full curriculum was not covered. Behavioural problems of the class in general took over learning.

I and my daughter hated it. More things were taught through take home reading and answering or assignments than actually taught in class. I would MUCH prefer a large class than a split grade.

The teacher was overwhelmed by the number of JKs and complained that she could not get to teaching the SK curriculum.

Schools are getting around the 20 student cap at the primary level by forming more split grades, effectively doubling the workload of the classroom teacher and minimizing the amount of time teachers have to spend with students on an individual basis.

Yet another concern is that combined-grade classes are not effective for all children:

I find split classes are fine for children who work well independently, but if that is not the case, children seem to be left behind. The teacher did not realize [my son] was having difficulties until he was being punished for having a behavioural issue one day. Then she realized that he didn't know what was going on.

[H]aving a teacher for 50% of the time doesn't work for all children.

The children do not get the benefit of a fulltime teacher.

Table 9-3. Parents' Perceptions of Their Children's and Their Own Experiences During the 2007-08 School Year, as Compared to Prior Years, for Children with Special Education Needs in Regular Classes

	JK-Grade 3 parents		Grades 4-8 parents	
	All	Special Ed.	All	Special Ed.
My child experienced learning difficulties:				
More than prior years	26%	24%	27%	30%
Same as prior years	54%	55%	55%	55%
Less than prior years	20%	20%	28%	14%
My child was engaged in learning:				
More than prior years	29%	32%	28%	23%
Same as prior years	56%	55%	56%	56%
Less than prior years	14%	12%	16%	21%
My child experienced behavioural challenges:				
More than prior years	20%	19%	20%	24%
Same as prior years	57%	56%	58%	57%
Less than prior years	23%	25%	22%	19%
My child had positive social interactions:				
More than prior years	24%	26%	23%	19%
Same as prior years	65%	64%	66%	67%
Less than prior years	11%	10%	11%	14%
The teacher's knowledge of my child's learning needs and abilities:				
Better	29%	33%	28%	25%
About the same	54%	52%	54%	54%
Not as good	17%	15%	18%	22%
The quality of discussion with the teacher about my child's learning needs and abilities:				
Better	30%	34%	28%	25%
About the same	52%	50%	52%	51%
Not as good	19%	16%	20%	24%
The quality of discussion with the principal about my child's learning needs and abilities:				
Better	18%	21%	17%	16%
About the same	61%	60%	60%	59%
Not as good	21%	19%	23%	26%

The parents of primary children with special education needs who work in regular classroom settings are comparable to the entire population of parents of primary children in their responses and in fact slightly more positive on every item on the survey.

But parents of junior and intermediate children with special education needs who work in regular classroom settings are three to five percentage points less positive than the entire population of parents of upper-grade children on every item.

A number of parents' comments parallel those of teachers in reporting a perception that the proportion of children with special education needs in regular classes is a concern:

My son does not get much help from the [Educational Assistant] due to the number of special needs in the class.

A number of comments reflect parents' concerns of a lack of sufficient resource support for children with special education needs:

He is supposed to have a 1.1 EA but there is only one EA in the entire school so she only spends about 1/3 of the day with his class, this is not fair to him as he needs a scribe and the extra help.

My child's Grade 4-5 class had 30 kids, 10 of whom had special needs, either due to learning disability or social challenges and discipline.

Discussion

Like the teachers whose perceptions provided the data for Chapter 8, parents of primary-grade students responded positively when asked about their sense of the quality of their child's learning experience. Parents of primary-grade students in combined-grade classes and those identified as having special educational needs were at least as positive about their children's opportunities to learn as the overall group of parents of primary-grade students.

The numeric responses of parents of junior and intermediate students were not significantly different from those of parents of primary students, but those who provided written comments identified issues similar to those of teachers with respect to the quality of conditions for teaching and learning. While the overall sample of parents of junior and intermediate students was similar in their reported perceptions about their children's learning opportunities, a somewhat different picture is revealed when certain groups are focused on in isolation. Parents of upper-grade students in combined-grade classes and parents of upper-grade children identified as having special educational needs reported less satisfaction with their children's classroom experiences, in ways that suggest they saw large class size as a major contributor to the lack of quality.

To the extent that "parent engagement" refers to a positive response to the classroom experience of their children, the data reveal that class size makes a difference, particularly when compounded by combined-grade classes and especially for students identified as having special educational needs. To the extent that parent engagement refers to parents' sense that their actions on behalf of their children are successful, the data suggest that class size may also make some difference in parents' sense that they can be effective partners in their children's educational success.

CHAPTER 10: Implications and further considers

Ontario's primary class size reduction initiative has achieved the intended targets within the timelines set by the provincial government. Province-wide data show that about 90% of all primary classes had 20 or fewer students, and all primary classes had 23 or fewer students by the end of the academic year 2007-08. Teachers and parents of children in the primary grades believe that these children are receiving more effective instruction than in the past. PCS has provided the conditions for teachers to develop better understandings of individual students' learning needs and to respond with effective instructional strategies. Parents of primary-grade students report positive changes in their children's learning environments. There are many indications that PCS has been successful in improving the conditions of teaching and learning for many children in the primary grades.

The success of PCS in meeting its numeric targets is remarkable. However, we believe the policy may have the potential to improve learning conditions for a wider range of students than it currently does. In addition, PCS has resulted in some unintended consequences that must be attended to if the provincial government wants to act on its commitment to improving academic achievement for *all* children.

Three factors were identified early in this report to focus the analysis.

1. Disaggregating the data to reveal variation across individuals, groups and settings suggests that further steps must be taken to “close the gap” in academic achievement for children for whom factors such as race and socio-economic status traditionally have been barriers. There are indications that PCS may inadvertently contribute to less than optimal conditions for teaching and learning in some kinds of classes. And school boards have varied in their ability to implement PCS in ways that actually lead to program innovation.
2. The study also reveals variations in capacity that appear to have important consequences for PCS implementation. Some teachers are able to move more quickly to incorporate new instructional strategies in their teaching. Some schools and school boards are more able than others to comply with PCS requirements without experiencing losses of human resources in other program areas.
3. Finally, the breadth of the study, across educational system levels (province, board, school, and classroom) and multiple sites suggest some unintended consequences that may result from inadequate attention to policy coherence. There are positive—real and potential—relationships among the Ministry of Education's priorities related to literacy and numeracy strategies, special education, targeted programs for specific student population groups, professional learning for teachers, and leadership development. At the same time, focused attention is necessary to ensure that educational programs work in complementary ways, rather than at cross-purposes.

This final chapter identifies further considerations that our research identifies as worthy of attention and provides some concrete proposals for taking action.

Further consideration 1: Professional learning for teachers

We propose that more work be done at the provincial and district levels to provide professional learning opportunities to enhance teachers' confidence, competence, and willingness to provide high-quality learning for all students.

Teachers' capacity to create high expectations for all students, and the resulting provision or restriction of opportunities to learn, is a longstanding problem that has been documented in the research for many years. In our field research, we observed that some teachers of primary classes have not yet taken full advantage of the opportunity that smaller classes offer to improve learning for all students, particularly those from racial minority, immigrant and/or low-SES backgrounds.

In interviews, teachers remarked that the implementation of recent ministry and board initiatives seemed to be more feasible in smaller classes: they were more inclined to attempt new strategies that they had learned about differentiated pedagogy, balanced literacy, inclusive education and integrated curriculum. But in classes with racial minority, immigrant and/or poor students, teachers tended to work on discrete skills associated with the transmission of basic facts and concepts rather than providing students with opportunities to develop higher-order skills.

Responsibility for meeting students' educational needs should not be placed exclusively on individual teachers. Responding to differences in children's intellectual, physical, emotional and social needs often requires more organized responses involving additional program, school, school board, provincial, and community resources. The provincial government's Poverty Reduction Strategy can be expected to contribute positively to children's education.

The Ministry of Education has also begun working toward the goal of increasing teachers' capacity to respond to a broader range of students' learning needs through programs to support English- and French-language learning; boys' literacy; First Nations, Métis and Inuit education; and special education. The recently launched Equity and Inclusive Education Strategy, plus government support for poverty reduction, aim also to tackle discrimination and disadvantage.

Further consideration 2: Effective instruction in combined-grade classrooms

We propose that the Minister's Curriculum Council's working group on the elementary curriculum review the current elementary curriculum's learning goals and objectives in relation to teachers' capacity to provide effective instruction in combined-grade classrooms.

Teachers and parents reported that there was not enough class time for teachers to adequately address grade-level content in classes with more than one grade level and at the same time provide sufficient attention to addressing individual students' learning needs. Professional learning strategies could be introduced at the provincial government and school board levels to enhance teachers' capacity with respect to instructional skills. Student grouping might also be decoupled from staffing at the school level by developing practices that group students with different teachers for different kinds of instruction.

The number of combined-grade classes in elementary schools has increased, and many teachers and parents report that teaching is not always effective across grade levels, particularly in larger classes such as those at junior and intermediate levels. The problem of less-than-optimal teaching in combined-grade classes may reflect teachers' limited capacity to implement effective instructional strategies in multi-grade classrooms.

Some educators also cite a lack of policy coherence between the large number of specified grade-level learning outcomes and the realities of combined-grade classes as a possible issue.

Further consideration 3: Strategies for grouping students and assigning teachers

We propose that school boards and schools consider innovative strategies and greater flexibility for grouping students and assigning teachers throughout the elementary grades. Consideration should be given to the cascading effects of choices made for the primary grades on the junior and intermediate grades, as well.

Children need effective learning environments at all ages. Ensuring that such conditions are available in the junior and intermediate grades is as important as in the primary grades.

While the average class size in the upper elementary grades has not actually increased in the past few years, the reality is that many junior and intermediate classes are large in comparison to primary classes (see Table 8-6). The study suggests that, while small classes in primary grades can mitigate against learning challenges, these same challenges loom large in larger junior and intermediate classes. Teachers in Grades 4 to 6 are expected to adopt strategies that emphasize a variety of activities and more individualized instruction. Educators report that children come to school with more intellectual, social, emotional and physical challenges than ever before. There appear to be cases where human resources have been inadvertently redirected away from the junior and intermediate grades to serve primary students and classes. Teachers and parents' comments suggest that this higher level of difficulty may be directly related to class size.

Resource capacity and policy coherence factors appear to be at play here. It is a commonplace assumption that class size reduction is most cost-effective in the primary grades because it allows children to develop fundamental skills, dispositions and socialization patterns necessary for their success in school (Addonizio & Phelps, 2001; Allen & Lynd, 2000; Biddle & Berliner 2002; Finn, 2002; Guillemette, 2005; Hanushek, 1999; Manitoba Association of School Trustees, 2001; Robinson, 1990), but there may be little actual robust evidence for this. There is some evidence that investment in the junior (4-6) grades is crucial because this is where children are beginning to apply their skills to actual learning ("reading to learn" rather than "learning to read"). As well, there is evidence that the intermediate grades (7-8) are critical to cementing early adolescents' commitment to schooling—or, alternatively, to adolescents turning off and running the risk of dropping out of school (California State Department of Education, 1987; Hargreaves & Earl, 1990). Assumptions that children are fully "inoculated" against future learning difficulties by the end of Grade 3 are clearly unfounded.

Where resources for staffing are limited, it is worth considering innovative strategies and greater flexibility for grouping students and assigning teachers. Altering the PCS requirements (for example, a desired class size of 20 students with a permissible maximum of 22 students) would allow some flexibility for such innovation.

Further consideration 4: Balance between provincial and local decision-making

We propose that the Ministry of Education, together with key stakeholders, review and clarify its policy strategy with respect to the balance between central direction and local strategic development. The Ministry of Education could use its existing infrastructure to provide some support for developing local leadership capacity in ways that reflect a dynamic balance between provincial and local decision-making.

Informed local discretion is necessary to ensure appropriate matches between provincial government priorities and particular conditions and values of districts and school communities.

School board and school administrators based their decisions about PCS implementation almost exclusively on achieving compliance with the ministry's requirements. They reported being less able to take into account issues related to broader program concerns (for example, which students to place with which teachers to address social or learning considerations). Many teachers and parents stated that staffing and allocation decisions "didn't make sense" and reported adverse consequences for some students. Again, resource capacity and policy coherence factors appear to be at play.

As a policy directive, PCS is clear and specific about what is required of school boards and schools. This clarity was responsible for the remarkable degree of success in reaching provincial government policy targets, but it may also limit sound programming decisions, and result in unintended negative consequences. This was particularly evident in school boards and schools with students of lower socio-economic background and limited resources. The bypassing of local administrative discretion contributed to a lack of program coherence in terms of resource allocation, staffing decisions and class composition.

To some degree, this problem appears related to the conceptualization of PCS by the provincial government as a high profile, discrete innovation in relation to other provincial and possibly local priorities. It also appears symptomatic of the tendency, by this government and by many other Western jurisdictions, toward greater centralization of decision-making authority. The result is a policy environment where inputs (resources), process (how and when to get there), and outcomes are so specified that variation, discretion, and innovation at the level of educational program delivery are seriously curtailed. While the Ministry of Education has identified building leadership capacity as a priority, the focus on centralized control can and does limit districts' ability to exercise this capacity because of a lack of opportunity to do so with any discretion. Instructional leadership at the school board, school and classroom levels may have been unintentionally compromised.

The existing infrastructure at the provincial level intended to support leadership development (the Ontario Leadership strategy and the leadership-focused initiatives within the Literacy and Numeracy Secretariat) can provide some support for developing local leadership capacity in ways that reflect a dynamic balance between provincial and local decision-making.

REFERENCES

Note: All URLs provided below were active on October 7, 2009.

Achilles, C. M. (2003). *How class size makes a difference: What the research says about the impact of size reduction*. ERIC Document Reproduction Service No. ED475012.

Addonizio, M. F., & Phelps, J. L. (2001). Class size and student performance: A framework for policy analysis. *Journal of Educational Finance*, 26(2), 135-156.

Allen, J., & Lynd, C. (2000). *Debunking the class size myth: How to really improve teacher effectiveness*. Center for Education Reform, Washington, DC.

Annevelink, E. (2004). Additional staffing, classroom processes, and achievement. Paper presented at Education Research Conference, Utrecht University, the Netherlands, June 9-11.

Bascia, N. (1994). *Unions in teachers' professional lives*. New York: Teachers College Press.

Bascia, N. (1996). Caught in the crossfire: Restructuring, collaboration, and the "problem" school. *Urban Education*, 31(2), 177-198.

Bascia, N. (2001). Pendulum swings and sediment layers: Educational policy and the case of ESL. In J. Portelli & P. Solomon (Eds.), *The erosion of the democratic tradition in education: From critique to possibilities* (pp. 245-268). Calgary: Detselig.

Bascia, N., & Hargreaves, A. (2000). Teaching and leading on the sharp edge of change. In N. Bascia & A. Hargreaves (Eds.), *The sharp edge of educational change: Teaching, leading and the realities of reform* (pp. 3-26). London: The Falmer Press.

Bascia, N., & Jacka, N. (2001). Falling in and filling in: ESL teaching careers in changing times. *International Journal of Educational Change*, 2(3), 325-346.

Basham, P., & Hepburn, C. (1999). A lesson in education reform: Don't cut class size. *Fraser Forum* (October), 27-28.

Beck, L., & Murphy, J. (1993). *Understanding the principalship: Metaphorical themes, 1920s-1990s*. New York: Teachers College Press.

Bennett, N. (1996). Class size in primary schools: Perceptions of head teachers, chair of governors, teachers, and parents. *British Educational Research Journal*, 22(1), 33-55.

Biddle, B. J., & Berliner, D. C. (2002). Small class size and its effects. *Educational Leadership*, 59(5), 12-23.

Blackett, K. (1998). The tracking report: School inventory results announced. *People for Education Newsletter* 1(9), 1-2.

Blatchford, P., Bassett, P., Brown, P., Martin, C., & Russell, A. (2004). *The effects of class size on attainment and classroom processes in English primary schools (years 4-6) 2000-2003*. Institute of Education, University of London. Available at: <http://www.dcsf.gov.uk/research/data/uploadfiles/RBX13-04.pdf>

Blatchford, P., Goldstein, H., Martin, C., & Browne, W. (2002). A study of class size effects in English school reception year classes. *British Educational Research Journal*, 28(2), 167-185.

Blatchford, P., & Mortimore, P. (1994). The issue of class size for young children in schools: What can we learn from research? *Oxford Review of Education*, 20(4), 411-428.

Bohrnstedt, G. W., & Stecher, B. M. (2002). *What we have learned about class size reduction in California*. CSR Research Consortium Capstone Report. California: California Department of Education.

Burch, P., & Theoharis, G. (2005, April). Class size reduction in practice: Investigating the influence of the elementary school principal. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Quebec.

Burke, S. (1986). How smaller is better: Some relationships between class size, teaching practices and student achievement. *American Educational Research Journal*, 23(4), 558-571.

California State Department of Education. (1987). *Caught in the middle: Educational reform for young adolescents in California public schools*. Sacramento, California.

Carter, S. (1999). *No excuses: Seven principals of low-income schools who set the standard for high achievement*. Washington DC: The Heritage Foundation.

Clune, W. (1990). Three views of curriculum policy in the school context: The school as policy mediator, policy critic, and policy constructor. In M. McLaughlin, J. Talbert, & N. Bascia (Eds.), *The contexts of teaching in secondary schools: Teachers' realities* (pp. 256-270). New York: Teachers College Press.

Cochran-Smith, M., & Lytle, S. L. (1992). Communities for teacher research: Fringe or forefront? *American Journal of Education*, 100, 298-324.

Cuban, L. (1998). How schools change reforms: Redefining reform success and failure. *Teachers College Record*, 99(3), 453-477.

Cubberley, E. (1923). *The principal and his school: The organization, administration, and supervision of instruction in an elementary school*. Boston: Houghton Mifflin Company.

Darling-Hammond, L. (1997). The limits of education bureaucracy. In *The right to learn: A blueprint for creating schools that work* (pp. 37-68). San Francisco: Jossey-Bass.

Darling-Hammond, L. (2000, January). *Teacher quality and student achievement: A review of state policy evidence*. Education Policy Analysis Archives, 8(1). Available at: <http://epaa.asu.edu/epaa/v8n1/>

Day, C., & Harris, A. (2003). Teacher leadership, reflective practice and school improvement. In K. Leithwood & P. Hallinger (Eds.), *Second International Handbook of Educational Leadership and Administration* (2nd. ed.) (pp. 957-978). Dordrecht, the Netherlands: Springer.

Edmonton Public School, University of Alberta Faculty of Education. (2001). Small class size project.

Elmore, R. (1977). Backward mapping: Implementation research and policy decisions. *Political Science Quarterly*, 94(4), 601-616.

Englehart, J. M. (2007). Discourse in a small class: The 'diverge-converge pattern' and 'relaxed freedom.' *Education 3-13*, 35(1), 83-97.

Evans, R. (1996). *The human side of school change: Reform, resistance, and the real-life problems of innovation*. San Francisco: Jossey-Bass.

Finley, M. K. (1984). Teacher and tracking in a comprehensive high school. *Sociology of Education*, 57, 233-243.

Finn, J. D. (2002). Small classes in American schools: Research, practice and politics. *Phi Delta Kappan*, 83(7), 551-560.

Finn, J. D., Gerber, S. B., Achilles, C. M., & Boyd-Zaharias, J. (2001). The enduring effects of small classes. *Teachers College Record*, 103(2), 145-183.

Firestone, W. A. (1993). Alternative arguments for generalizing from data as applied to qualitative research. *Educational Researcher*, 22(4), 16-23.

Folger, J. (1989). Lessons for class size policy and research. *Peabody Journal of Education*, 67(1), 123-132.

Folger, J., & Breda, C. (1989). Evidence from project STAR about class size and student achievement. *Peabody Journal of Education*, 67(1), 17-33.

Gilstrap, S. G. (2002). *Evaluation of implementation of Federal class size reduction in Los Angeles Unified School District*. ERIC Document Reproduction Service No. ED472493.

Graue, E., Oen, D., Hatch, K., Rao, K., & Fadali, E. (2005). Perspectives on class size reduction. A paper presented at the symposium Early Childhood Policy in Practice: The Case of Class Size Reduction, at the annual meeting of the American Educational Research Association, April 12, Montreal, Canada.

Greene, J. P., & Forster, G. (2003, October 2). Smaller classes. *National Post*. Available at: http://www.manhattan-institute.org/html/_natlpost-smaller_classes.htm

Guillemette, Y. (2005). *School class size: Smaller isn't better*. Toronto: C.D. Howe Institute.

Hanushek, E. (1999). Some findings from an independent investigation of the Tennessee STAR experiment and from other investigations of class size effects. *Educational Evaluation and Policy Analysis*, 21(2), 143-165.

Hargreaves, A., & Earl, L. (1990). *Rights of passage: A review of selected research about schooling in the Transition Years*. Toronto, Ontario: Queen's Printer.

Holloway, J. H. (2002). Do smaller classes change instruction? *Educational Leadership*, 59(5), 91-92.

Hopkins, G. (1998, February 16). The debate over class size, part 1: Class size *does* matter! *Education World*. Available at: http://www.education-world.com/a_issues/issues024.shtml

Hopkins, G. (1998, February 23). The debate over class size, part 2: Critics have their say. *Education World*. Available at:

http://www.educationworld.com/a_issues/issues/issues025.shtml

Institute for Educational Leadership (2000). Leadership for student learning: Reinventing the principalship. *School leadership for the 21st century initiative: A report of the task force on the principalship*. Washington, DC: Institute for Educational Leadership. Available at: <http://www.iel.org/programs/21st/reports/principal.pdf>

Jepsen, C., & Rivkin, S. (2002). Class size reduction, teacher quality, and student achievement in California public elementary schools. Public Policy Institute of California. Available at: http://www.ppic.org/content/pubs/report/R_602CJR.pdf

Konstantopoulos, S. (2008). Do small classes reduce the achievement gap between low and high achievers? Evidence from Project STAR. *The Elementary School Journal* 197(4), 275-291.

Korostoff, M. (1998). Tackling California's class size reduction policy initiative: An up close and personal account of how teachers and learners responded. *International Journal of Educational Research*, 29, 797-807.

Krueger, A. B., & Hanushek, E. A. (2000). The class size debate. Working Paper # 121, Economic Policy Institute, Washington, DC. ERIC Document Reproduction Service No. ED452297.

Krueger, A., & Whitmore, D. (2002). Would smaller classes help close the black-white achievement gap? In J. Chubb and T. Loveless (Eds.), *Bridging the achievement gap*. Washington, DC: Brookings Institute Press.

Leader, G., with Stern, A. (2008). Real leaders, real schools: Stories of success against enormous odds. Cambridge: Harvard Education Press.

Leithwood, K. (2006). *Teacher Working conditions that matter: Evidence for change*. Toronto: Elementary Teachers' Federation of Ontario.

Little, J. W. (1993). Teachers' professional development in a climate of educational reform. *Educational Evaluation and Policy Analysis*, 15(2), 129-151.

Lortie, D. (1975). *Schoolteacher: A sociological study*. Chicago: University of Chicago Press.

Manitoba Association of School Trustees. (2001). Submission to the commission on class size and composition. Winnipeg, Manitoba. Available at: http://www.mast.mb.ca/news_views/documents/class_size.pdf

Manitoba Teachers' Society. (2001). Class size: Less is more. Available at: www.mbteach.org/library/Archives/Issues/ISS-classcomp.pdf

McDougall, D., Gaskell, J., Flessa, J., Kugler, J., Jang, E., Herbert, M., Pollon, D., Russell, P., & Fantilli, R. (2006). *Improving student achievement in schools facing challenging circumstances*. Final Report prepared for the Literacy and Numeracy Secretariat. Toronto: Ontario Institute for Studies in Education. Available at: www.curriculum.org/secretariat/files/Sept28Summary.pdf

McLaughlin, M. (1987). Learning from experience: Lessons from policy implementation. *Educational Evaluation and Policy Analysis* 9(2), 171-178.

McLaughlin, M. (1993). What matters most in teachers' workplace context? In J. W. Little & M. W. McLaughlin (Eds.), *Teachers' work: Individuals, colleagues, and contexts* (pp. 79-103). New York: Teachers College Press.

McLaughlin, M., & Talbert, J. (2001). *Professional communities and the work of high school teaching*. Chicago: University of Chicago Press.

McRobbie, J., Finn, J. D., & Harman, P. (1998). Class size reduction: Lessons learned from experience. West Ed Policy Brief. Available at: <http://www.wested.org/cs/we/view/rs/119>

Metz, M. (1989). Real school: A universal drama amid disparate experience. In D. Mitchell & M. Goertz (Eds.), *Education politics for the new century: The twentieth anniversary yearbook of the Politics of Education Association* (pp. 75-91). London: The Falmer Press.

Metz, M. (1990). How social class differences shape teachers' work. In M. McLaughlin, J. Talbert, & N. Bascia (Eds.), *The contexts of teaching in secondary schools: Teachers' realities*. New York: Teachers College Press.

Miles, C., & Gamoran, A. (2006). Effects of class size and instruction on kindergarten achievement. *Educational Evaluation and Policy Analysis*, 28(4), 287-313.

Miles, K., & Darling-Hammond, L. (1998). Rethinking the allocation of teaching resources: Some lessons from high-performing schools. *Educational Evaluation and Policy Analysis* 20(1), 9-29.

Milton, P. (2006). What matters about class size? *Education Canada* (Summer). Toronto: Canadian Education Association.

Mitchell, D. E., & Mitchell, R. E. (2003). The political economy of education: The case of class size reduction. *Peabody Journal of Education*, 78(4), 120-152.

Molnar, A., Smith, P., & Zahorik, J. (1998). *1997-98 results of SAGE program evaluation*. Temple, Arizona: Education Policy Studies Laboratory.

Molnar, A., Smith, P., Zahorik, J., Palmer, A., Halbach, A., & Ehrle, K. (1999). Evaluating the SAGE program: A pilot program in targeted pupil-teacher reduction in Wisconsin. *Educational Evaluation and Policy Analysis*, 21(2), 165-177.

Mosteller, F. (1995). The Tennessee study of class size in the early school grades. *Critical Issues for Children and Youths*, 5(2), 113-127.

Muncey, D., & McQuillan, P. (1996). *Reform and resistance in schools and classrooms*. New Haven: Yale University Press.

Naylor, N. (2007). Implementing primary class size caps in Ontario. Paper presented at the annual meeting of the American Educational Research Association, Chicago, April 9-13.

Normore A. H., & Ilon, L. (2006). Cost effective school inputs: Is class size reduction the best educational expenditure for Florida? *Educational Policy*, 20(2), 429-454.

Nye, B., Hedges, L. V., & Konstantopoulos, S. (1999). The effects of small classes on academic achievement: The results of the Tennessee class size experiment. *American Educational Research Journal*, 37(1), 123-151.

- Oakes, J. (1989). What educational indicators? The case for assessing the school context. *Educational Evaluation & Policy Analysis*, 11(2), 181-199.
- Odden, A. (1990). Class size and student achievement: Research-based policy alternatives. *Educational Evaluation and Policy Analysis*, 12(2), 213-227.
- Odden, A., & Archibald, S. (2001). Committing to class-size reduction and finding the resources to implement it: A case study of resource reallocation. *Education Policy Analysis Archives*, 9(30). Available at: <http://epaa.asu.edu/epaa/v9n30.html>
- Ogawa, R. T., Huston, D., & Stine, D. (1999). California class reduction initiative: Differences in teacher experience and qualifications across schools. *Educational Policy*, 13(5), 659-673.
- Ontario English Catholic Teachers Association (1999). Class size in Ontario Catholic schools. Toronto. Available at: <http://www.oecta.on.ca/pdfs/classsize.pdf>
- Ontario Ministry of Education. (1988). *1988 school board funding in Ontario*. School Business and Finance Branch. Toronto.
- Ontario Ministry of Education. (1989). *Education funding in Ontario: The General Legislative Grants Regulations, 1989*. Toronto.
- Ontario Ministry of Education. (1990). *Education funding in Ontario: The General Legislative Grants Regulations 1990*. Toronto.
- Ontario Ministry of Education. (1992). *Toward education finance reform: A description of the present education funding model and the terms of reference for reform; and the 1992 General legislative Grants Regulations*. Toronto.
- Ontario Ministry of Education and Training. (1993). *Education funding in Ontario 1993: The General Legislative Grants Regulations*. Toronto.
- Ontario Ministry of Education. (1994). *Education funding in Ontario 1994: A description of the education funding model*. Toronto.
- Ontario Ministry of Education. (1995). *Education funding in Ontario 1995: A description of the education funding model*. Toronto.
- Ontario Ministry of Education. (1996). *Education funding in Ontario 1996: A description of the education funding model*. Toronto.
- Ontario Ministry of Education. (1997). *Education funding in Ontario 1997: A description of the education funding model*. Toronto.
- Ontario Ministry of Education. (2003a). *Early reading strategy: The report of the expert panel on early reading in Ontario*. Toronto.
- Ontario Ministry of Education. (2003b). *Guide to effective instruction in reading, Kindergarten to Grade 3*. Toronto.
- Ontario Ministry of Education. (2005a). *Education for all: The report of the expert panel on literacy and numeracy instruction for students with special educational needs, Kindergarten to Grade 6, 2005*. Toronto. Available at: <http://www.edu.gov.on.ca/eng/document/reports/speced/panel/index.html>

- Ontario Ministry of Education. (2005b). *Leading education: New supports for principals and vice-principals in Ontario publicly funded schools*. Toronto. Available at: <http://www.edu.gov.on.ca/eng/general/elemsec/partnership/leadingEducation.html>
- Ontario Ministry of Education. (2005c). *Parent voice in education—Report*. Toronto. Available at: <http://www.edu.gov.on.ca/eng/document/reports/parentVoice.pdf>
- Ontario Ministry of Education (2008). *Reach Every Student: Energizing Ontario Education*. Toronto. Available at: <http://www.edu.gov.on.ca/eng/document/energize/energize.pdf>
- Pannozzo, G. M., & Finn, J. D. (2001). Professional development and support needs of class-size reduction teachers. *The CEIC Review*, 10(9), 20-21.
- Quartz, K., Barraza-Lyons, K., & Thomas, A. (2005). Retaining teachers in high-poverty schools: A policy framework. In N. Bascia, A. Cumming, A. Datnow, K. Leithwood, & D. Livingstone (Eds.), *International handbook on educational policy* (pp. 491-506). Dordrecht, the Netherlands: Kluwer Academic Press.
- Reichardt, R. (2001). Reducing class size: Choices and consequences. ERIC Document Reproduction Service No. ED456532.
- Robinson, G. E. (1990). Synthesis of research on the effects of class size. *Educational Leadership*, 47(7), 80-90.
- Sack, J. L. (2005). Nearly a decade into small class law, California educators love imperfect effort. *Education Week*, 24(24), 1-2.
- Sanogo, Y., & Gilman, D. (1994). Class size and student achievement: Tennessee's STAR and Indiana's Prime Time projects. ERIC document Reproduction Service No. ED370680.
- Scudder, D. F. (2002). An evaluation of the federal class size reduction program in Wake County, North Carolina –1999-2000. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, April 1-5.
- Shapson, S., Wright, E., Eason, G., & Fitzgerald, J. (1980). An experimental study of the effects of class size. *American Educational Research Journal*, 17(2), 141-152.
- Sharp, Mark A. (2002). *An analysis of pupil-teacher ratio and class size*. Doctoral dissertation. Ypsilanti, Michigan: Eastern Michigan University.
- Siskin, L. (1994). *Realms of knowledge: Academic departments in secondary schools*. London: Falmer Press.
- Stecher, B., Bohrnstedt, G., Kirst, M., McRobbie J., & Williams., T. (2001). Class size reduction in California: A story of hope, promise and unintended consequences. *Phi Delta Kappan*, 82(9), 670-674.
- The California Education Policy Seminar & The California State University Institute for Education Reform. (1996). *Is less more? Exploring California's new class size reduction initiative*. Available at: <http://www.csus.edu/ier/reports/reduction.pdf>
- Toppo, G. (2008, March 24). Size alone makes small classes better for kids. *USA Today*. Available at: http://www.usatoday.com/news/education/2008-03-24-small-classes_N.htm

Turley, S., & Nakai, K. (1998). Coping with class size reduction in California. *Educational Leadership*, 55(5), 40-43.

Weick, K. (1976). Educational organizations as loosely coupled systems. *Administrative Science Quarterly*, 21, 1-19.

Werner, W. (1991). Curriculum and uncertainty. In R. Ghosh & D. Ray (Eds.), *Social change and education in Canada* (2nd edition) (pp. 105-115). Toronto: Harcourt Brace Jovanovich.

Wolcott, H. (1973). *The man in the principal's office: An ethnography*. New York: Holt, Rinehart, and Winston, Inc.

Yee, S. (1988). *School as a place to have a career*. New York: Teachers College Press.

Zahorik, J. A. (1999). Reducing class size leads to individualized instruction. *Educational Leadership*, 57(1), 50-53.

APPENDIX A: Research methodology

The research methodology includes the following questions, which were developed in an iterative fashion by the Ontario Ministry of Education, the Canadian Education Association, and the Principal Investigator.

1. What does the existing research base say about the conditions that give rise to effects of class size reduction?
2. What was the policy context for class size reduction and its intended effects?
3. What has been the provincial impact of the initiative?
 - A. How much has the government invested in primary class size to date?
 - B. How many additional primary classes have been added?
 - C. How many additional teachers have been hired?
 - D. How many classes have actually been added compared with the number of classes that were expected to be added with the funding?
 - E. What percentage of primary classes is at 20 and under and how has it changed over time?
 - F. What percentage of primary classes is at 23 and under and how has it changed over time?
 - G. What is the average primary class size and how has it changed over time?
 - H. What is the average junior/intermediate class size and how has it changed over time?
 - I. Did the number of combined-grade classes increase? What grades were involved?
4. What direction or support was provided by school districts during implementation of class size reduction?
5. What have principals changed in their schools and roles as school leaders in response to the reduction of class sizes?
6. How have students' and teachers' experiences of teaching and learning changed in connection with the reduction of primary class sizes to 20 or fewer students?
7. How has parents' engagement with their children's schools changed in connection with class size reduction?
8. How does class size reduction intersect with other initiatives to improve student achievement in the primary division?
9. What recommendations for policy or program to maximize the benefits from class size reduction emerge from the analyses?

Data collection strategies were also developed jointly by the three parties. All research protocols were reviewed by external reviewers approved by the Management Board of the Canadian Education Association (CEA), in accordance with CEA's Ethics Review Policy, to ensure that ethical considerations such as confidentiality and anonymity would be taken into account.

The following sections include descriptions of the data presented in each of the report chapters, as well as interview, observation, and written survey protocols that guided data collection.

Data Sources

Actions Taken by the Provincial Government (Chapter 3)

We drew on interviews with Ministry of Education officials and staff, as well as documentary evidence.

Province-wide Implementation Patterns (Chapter 4)

This report relies on information from the following sources provided by the Ministry of Education: the Board School Identification Data (BSID) and School Facilities Information System (SFIS) databases; the Class Size Tracker, which tracks actual class sizes by grade and school for every Ontario school that includes primary (K-3) grades for each year; as well as the number of additional classroom spaces requested by school boards and the monies approved by the Ministry of Education.

School Board Actions (Chapter 5)

We selected eight Ontario school districts that represented variation in factors we believed might have some bearing on how PCS was implemented, as follows:

- By *size* (number of students). Using the provincial designation for district size and keeping in mind the actual provincial distribution of districts with respect to size, our sample includes two large districts (over 64,000 students); one medium-large district (38,000 to 64,000 students); two medium-small districts (22,000 to 38,000 students); and three small districts (fewer than 22,000 students).
- By *sector* (language and denomination). Here too we kept in mind the actual provincial distribution with respect to sectors: four English public districts; two English Catholic districts; one French-language public district; and one French-language Catholic district.
- By *geography*: one Northern Ontario district; two Eastern Ontario districts; three Southwestern Ontario districts; and two districts in the Greater Ontario Area (GTA).
- By *enrolment status*. Our sample included three districts with increasing enrolment and five districts with decreasing enrolment.

In each district, we interviewed approximately three central office staff – superintendents, research directors, human resource staff, planning staff, and so on – whom our local contact perceived as having substantive understanding of PCS implementation and who, among them, would have different perceptions on the effects of PCS. The interview protocol focused on questions about the chronology of local PCS implementation, the annual implementation cycle, context factors that respondents thought might affect the nature and quality of implementation, and opportunities and challenges associated with implementation. We also collected documents identified by staff that illustrated planning and decision-making processes.

Principals' Actions (Chapter 6)

In each of the eight school districts, we selected three schools that represented variation in factors that, according to research reports, might have some bearing on the implementation of PCS:

- By *socio-economic status of school community (SES)*. Our sample included one low-SES school, one mid-SES school, and one high-SES school in each board.
- By *geographic distinction* (inner city, suburban, rural).
- By *size*. Our sample includes different size schools in each board.

The sample included three schools receiving Ontario Focused Intervention Partnership (OFIP) resources from the Literacy and Numeracy Secretariat and another two designated as requiring similar support by their local school boards.

Data collection included hour-long administrator interviews at each of the 24 school sites in the study. The principal interview protocol worked in parallel with the questions asked at the district level, eliciting responses about the implementation chronology and the organizational chains of command that had provided principals with information and directions regarding primary class size reduction. Principals were then prompted to describe perceived advantages and disadvantages of the policy, the perceived impact on instructional programs, the interaction between PCS and other school programs, and the ways in which school level relationships between and among teachers, parents, and administrators adjusted to the new policy. Interviews ended with a tour by the principal around the school that included identifying any features that might have resulted from or been impacted by PCS.

Primary Teachers' and Students' Classroom Experiences (Chapter 7)

Classroom observations were undertaken by members of the research team according to a pre-established protocol. The protocol emphasized the number and demographic distribution of students and which and how many students appeared engaged in learning; instructional strategies used by the teacher, including grouping, one-on-one work with students, whole class instruction, differentiated instruction and classroom management; the quality of student-teacher interaction, including higher- and lower-order teaching; student interactions; and use of other specialized staff.

Eighty-four classroom observations (four per school, one in each primary grade) were conducted in schools in 7 of the 8 school boards, for a period of a minimum of 40 minutes to a maximum of 1 day per classroom. These brief, "snapshot" observations were followed by an interview with the classroom teacher to review the period's activities in light of student characteristics and changes in pedagogical strategies as a result of PCS. The chapter also draws from interviews conducted with special education resource teachers and principals in each of the schools. Interviews focused on teachers' perceptions of their students; their use of instructional practices associated with the provincial government's Literacy and Numeracy Strategy; the availability of specific teaching resources; the quality of their relationships with parents, principals and other teachers; and their sense of efficacy as classroom teachers.

A subset of classroom observations was created in order to make data analysis more manageable, taking into account classroom observation summaries created by research team members. The sample consists of at least one classroom per school and a range of grade levels per school board, for a total of 24 classrooms.

Teaching and Learning: Reports from Teachers (Chapter 8)

The evidence drawn upon in this chapter includes all-teacher (primary, junior and intermediate) survey responses in each of the 24 schools in the study. The response rate ranged from 40% to 100% across school sites. The survey items parallel questions asked of teachers in interviews, asking teachers to comment on whether conditions had, in their experience, changed since the prior year (thus comparing pre- and post-implementation of the PCS "hard cap." Survey items paralleled the teacher interview questions described above. Interviews with teachers – the primary teachers whose classrooms were observed, a special education research teacher and an upper-grade teacher in each of the schools – also contributed to the analysis in this chapter.

Parents' Perceptions (Chapter 9)

To collect data from parents of elementary school children, we enlisted the support of People for Education, a parent led public education advocacy group with contacts with parents across the province. Over 3100 parents with representation from every school board in the province responded to an online survey, including nearly 70 parents whose children attended schools in French-language boards. Nearly 1,950 (62.5%) had a child in a primary grade; 1069 had a child in a junior or intermediate grade. About 38% reported a child in a combined-grade class, and 10% reported a child with special education learning needs who worked with a resource teacher or educational assistant.

Parents were asked to comment on some of the same issues that were the focus of interviews with principals and teachers, as well as the teacher survey. Like teachers, the parent survey asks for perceptions of how the 2007-08 school year (the first year of the "hard cap") compared with the year prior in terms of their child's quality of school experience and in their interactions with teachers and principals concerning their child's learning needs and abilities. Parents had opportunities to write in responses at three different places in the survey ("Is there anything particular you think we need to know about . . .?"); depending on the issue, between 10 and 18 percent of the time they provided written comments. The comments included in the chapter on parents' perceptions are representative of those expressed by others.

APPENDIX B: Consent letters and interview protocols

Consent letter: School board administrators and principals

Dear Administrator

This letter is requesting your participation in the “Reduced Class Size Project” which is focusing on the impact of the Ontario government’s class size reduction policy. This project was approved by the Canadian Education Association ethics committee. It is sponsored by the Canadian Education Association and is lead by Dr. Nina Bascia (principal investigator) and associate researchers from OISE/UT. Dr. Nina Bascia is a professor at OISE/UT in the department of Theory and Policy Studies in Education. This project focuses on how the class size reduction policy was implemented, what its impact has been on educational programs, teaching and learning, and what if any unintended consequences have resulted. It is not intended to evaluate any of the individuals or organizations involved but rather to develop a clear understanding of what has occurred. It should be useful for the Ministry of Education, school boards and educators. We want to ensure that we represent the experiences and perspectives of all kinds of people involved in policy implementation.

In order to find out about the impact this policy is having on your school board, we would like to conduct an interview with you. You will be one of a number of individuals we contact in order to get a wide range of perspectives on the impact of reduced class size policy, including school board and school-level administrators, teachers and parents.

The interview will take about no more than 60 minutes and will be audio-taped. Please be assured that all information will be held in strictest confidence. Only the research team will have access to the raw data. Interview tapes will be identified by code and stored in a locked office. Data will be reported in aggregate form. All raw data will be destroyed 5 years after the completion of the study. No school boards, schools or individuals will be identified on audiotapes or in any publications, reports, or conference presentations related to this research. Participation in this study is voluntary and you may withdraw at any time without adverse consequences. When you chose to withdraw your information will not be used and will be discarded. You may also choose to skip a question that you do not want to answer. This study has no known risks that may affect you, the participant.

In the past, participants have appreciated knowing that their experiences and perspectives will contribute to improving educational practices and have felt that they have gained valuable insights about their practices. If you have any questions about the research please feel free to call Nina Bascia at (416) 978-1159 or Christa Freiler, Director of Research for the Canadian Education Association, at (416) 591-6300 ext. 230.

We appreciate you considering our request for your involvement. If you agree to participate in our research program, please complete the form below.

Thank you.

Nina Bascia
Principal Investigator
Professor, Educational Leadership and Policy
Ontario Institute for Studies in Education of the University of Toronto (OISE/UT).
252 Bloor St. West
Toronto, Ontario CANADA M5S 1V6
Phone: (416) 978-1159
FAX: (416) 926-4741252
Email: nbascia@oise.utoronto.ca

I have read and understand the above information about the Reduced Class Size Research Project.
I therefore give consent to the following:

I agree to participate: ----- or I do not agree to participate: -----

I agree to be audio-taped: -----

Signature

Date

Print Name

School/School Board

Researcher signature: _____

Date: _____

Interview protocol: School board administrators (June 2007)

1. Tell us about your board
 - Social
 - Economic
 - Learning issues
 - Teachers
 - Parents
 - Special initiatives

2. How did you find out about reduced class size in primary grades:
 - When?
 - Who?
 - What format, language?
 - Resources?
 - What did you expect the outcome to be?
 - Initially viewed as opportunity? &/or requirement?

3. What did the board decide to do:
 - Sequence
 - Who
 - Board-level uniformity? &/or School-level decisions?
 - What information to schools?

4. What resources (financial, support; provincial, local) available?

5. How has it evolved – any changes over time? (probe for when)

6. How distributed across board?
 - Number of schools
 - Types of schools

7. Any changes in program delivery?
 - Spec ed
 - ESL
 - other

8. If we travelled around the board, what evidence of change would be visible?
 - New buildings, portables, changes in space usage
 - Numbers of teachers/staff; types of teachers; staff allocation practices
 - Teaching practices
 - Student enrolment patterns, e.g., split classes, school focus, etc.
 - Student achievement
 - Professional development
 - Relations with teachers

9. If you hired new teachers as a function of reduced class size, what kinds were you looking for and why (certification, background)?

10. How does reduced class size interact with other priorities?
- Literacy & numeracy/EQAO
 - Integration of special needs students
 - Budgeting
 - Collective agreement provisions
 - Induction (NTIP)
 - Other board priorities; which ones?
 - How important/salient has it been?
11. If you communicate with administrators in other boards, do you get a sense that this board is handling reduced class size in typical ways? Unusual ways?
12. In what ways has it been positive?
- Any surprises?
 - Relationships with parents?
 - Student learning?
13. In what ways has it been problematic?
- Unintended consequences?
14. Anything else we need to know?

Interview protocol: Principals

1. Tell us about your school.

Probes:

- Students (demographic factors, learning issues)?
- Teachers (demographics, their concerns)
- Parents (involvement, issues)
- Physical plant (meeting needs)
- Any special initiatives

2. How did you find out about reduced class size policy in primary grades?

- When
- Who
- Resources
- Was the reduced class policy viewed as opportunity? &/or requirement?

3. What did the board decide to do about reduced class policy?

- Sequence of events
- Who
- Uniformity across the board? &/or did school-level decisions inform the board's decisions?
- What was the information the school board communicated to the schools?
- What kind of resources (financial, support) did the school board make available?

4. How were board decisions on reduced class policy handled at the school level?

- How were decisions made at the school level?
- Who makes decisions about the reduced class policy at the school?

5. How has the reduced class size policy evolved in this school?

- Have there been changes over time?
- When did these changes occur?

6. If we traveled around this school, what evidence of change would be visible?

- Are there new buildings, portables, changes in space usage?
- Are there changes in the numbers of teachers/staff?
- Are there changes in types of teachers?
- Changes in patterns of teacher assignment to classes/students, especially ESL and special education?
- Changes in teaching practices?
- Patterns of student assignment to classes, especially ESL and special education (e.g. split classes, etc.)?
- Improvement in student learning since the implementation of reduced class policy? Evidence?
- Professional development?

7. If you hired new teachers as a function of reduced class size, what kinds were you looking for and why (certification, background)?

8. If you talk with administrators in other schools, do you get a sense that your school is handling reduced class size in typical ways? Have there been unusual ways?

9. How does reduced class size interact with provincial and board initiatives and priorities?

10. How does reduced class size interface with school-level priorities?:

- How important has it been?

11. In what ways has reduced class policy been positive?

- Have there been any surprises?
- Has the reduced class policy improved the relationships with parents?
- Has reduced class improved student learning?

12. In what ways has the reduced class size policy been problematic?

- Have they been unintended consequences?

13. Is there anything else we need to know about reduced class policy in your school?

** Ask for a guided walk around school for evidence of impact of reduced class size.

Consent letter: Teacher survey

Dear Teacher,

This letter is requesting your participation in the “Reduced Class Size Project” which is focusing on the impact of the Ontario government’s class size reduction policy. This project was approved by the Canadian Education Association ethics committee. It is sponsored the Canadian Education Association and is lead by Dr. Nina Bascia (principal investigator) and associate researchers from OISE/UT. Dr. Nina Bascia is a professor at OISE/UT in the department of Theory and Policy Studies in Education. This project focuses on how the class size reduction policy was implemented, what its impact has been on educational programs, teaching and learning, and what if any unintended consequences have resulted. It is not intended to evaluate any of the individuals or organizations involved but rather to develop a clear understanding of what has occurred. It should be useful for the Ministry of Education, school boards and educators. We want to ensure that we represent the experiences and perspectives of all kinds of people involved in policy implementation.

In order to find out about the impact this policy is having on your teaching and on student learning, we would like you to participate in a teacher survey. As a survey participant, you will be one of a number of individuals we contact in order to get a wide range of perspectives on the impact of reduced class size policy, including school board and school-level administrators, teachers and parents.

The survey will take about no more than 7 minutes to complete. Please be assured that all information will be held in strictest confidence. Only the research team will have access to the raw data. Raw data will be identified by code and stored in a locked office. Data will be reported in aggregate form. All raw data will be destroyed 5 years after the completion of the study. No school boards, schools or individuals will be identified in any publications, reports, or conference presentations related to this research. Participation in this study is voluntary and you may withdraw at any time without adverse consequences. When you chose to withdraw, your information will not be used and will be discarded. You may also choose to skip a question that you do not want to answer. This study has no known risks that may affect you, the participant.

In the past, participants have appreciated knowing that their experiences and perspectives will contribute to improving educational practices and have felt that they have gained valuable insights about their practices. If you have any questions about the research please feel free to call Nina Bascia at (416) 978-1159 or Christa Freiler, Director of Research for the Canadian Education Association, at (416) 591-6300 ext.230

We appreciate you considering our request for your involvement. If you agree to participate in our research program, please complete the form below.

Thank you.

Nina Bascia
Principal Investigator
Professor, Educational Leadership and Policy
Ontario Institute for Studies in Education of the University of Toronto (OISE/UT).
252 Bloor St. West
Toronto, Ontario CANADA M5S 1V6
Phone: (416) 978-1159
FAX: (416) 926-4741252
Email: nbascia@oise.utoronto.ca

I have read and understand the above information about the Reduced Class Size Research Project.
I therefore give consent to the following:
I agree to participate: ----- or I do not agree to participate: -----

Signature

Date

Print Name

School/School Board

Researcher signature: _____

Date: _____

Classroom observation protocol

General instructions:

Observer will draw a diagram of the classroom (see below) and take notes (see below) based on what s/he sees and hears. For this data collection strategy, audio recording is not appropriate. Once the observation is over, it should be used as the basis for a subsequent interview (ideally later the same day) with the teacher.

The diagram will become part of the data set for the classroom and school analyses.

The hand-written notes should provide the basis for the observer's attempt to recapture by digital recording what s/he saw and heard. The recording should be transcribed and become part of the same file as the teacher interview.

Physical Environment Diagram

Describe the classroom, including a diagram of seating/working arrangements; where teacher and other adults work; "hot" spots of student behaviour, activity, engagement; student demographics. If students move around, draw more than one diagram of student distribution

Describe Students

- Number
- Demographic distribution across room (e.g. gender, ability, ethnicity, language, spec ed, etc.)
- Number and types engaged in learning; who volunteers
- Number and kinds of interactions between students
- Number and kinds of interactions between students and teacher

Describe Classroom Organization

- Size; spaciousness
- Configuration
- Resources
- Accessibility
- Appropriateness of furniture, equipment, etc.

Teaching strategies

- Classroom management: how much, what kinds, how distributed, how effective
- Types of activities
- Whole class instruction: who/how many get called on; higher order vs lower order questioning
- Teacher- vs. student-directed
- Individual work time; Grouping (including pairs): how used, what groupings

Interview protocol: Classroom teachers

1 Tell us about yourself:

- How long teaching
- How long teaching in this school
- How long in this school board
- Grades taught; how long teaching this grade/specialization

2. Has there been a change in the size of your class over the past three years?

- What was the change? When did it start? Did it change every year?

3. Has there been a change in the combination of grades you teach? Describe

4. Tell us about your students:

- Learning issues, abilities. Listen for individual vs stereo-typical perceptions of students
- [ask about specific students: what teacher knows about them]
- Since class size reduction, any differences in how well you get to know students?
- Since reduced class size any differences in how well students learn? [Ask for specific examples/illustrations]
- Since reduced class size any change in student participation? Requests for more individualized support?

5. Teaching strategies:

- Tell us in your own words what we saw today in class
- Since primary class size reduction, notice any difference in how much discipline needed?
- Since primary class size reduction, any differences in *how* teach?
- Since primary class size reduction, any difference in how you decide how to teach?
- Any attempt to incorporate other recent initiatives: literacy and numeracy? Use of classroom resources and materials?
- How are you using differentiated instruction in your classroom?

6. Since the implementation of primary class size reduction in 2004-05, do you notice any differences in:

a. Quality of teaching experience

- student engagement in learning
- school climate/ culture
- your role or work
- work intensity
- physical quality of classroom space

b. Staffing decisions

- how teachers and students are assigned to classes
- number, types, use of support staff
- how ESL, special ed/inclusion handled in school
- what might be done differently to improve the situation

c. Relationships

- relationships between teachers and students – more individualize attention
- relationships between teachers and principal/vice-principal
- your relationship with principal/school administrators
- relationships between teachers
- relationships between you and parents

Anything else we need to know about how primary class size reduction was implemented and works in this school?

Interview protocol: Special (ESL, SpecEd, Resource Teacher) and junior/intermediate teachers

1. Tell us about yourself:

- How long teaching
- How long teaching in this school
- How long teaching in this school board
- Describe your duties (grades, specializations, etc – all functions this year)
- How long teaching this grade/specialization

2. How has primary class size reduction been implemented in this school:

- How big a change; when

3. Since the implementation of primary class size reduction in 2004-5, do you notice any differences in:

- Quality of teaching experience
- Student learning
- School climate/ culture
- Your role or work
- Work intensity
- Physical quality of classroom space
- Staffing decisions
- Number, types, use of support staff
- How ESL, special ed/inclusion handled in school
- Relationships between teachers and administrators
- Your relationship with principal/school administrators
- Relationships between teachers
- Relationships between you and parents

Anything else we need to know about how [ESL, Spec Ed, etc.] is handled in this school?

E-mail Message from People for Education to Provincial Parents E-mail List

Hi Everyone,

The Canadian Education Association and OISE, U of T are conducting a study to help the Ministry of Education find out about the impact of reducing class size.

Can you help? There are two things you can do.

1. Fill in the very short questionnaire yourself (if applicable, see below).
2. Forward this email to all the elementary school parents and school councils you know!

I apologize for the short timelines - deadline Dec. 3rd/08.

However your input, and input from as many parents around the province as possible, is very important.

How it works.

If you had at least one child attending elementary school last year (2007-08), read on!

The researchers would like parents of children in all grades (JK to Gr. 8) last year, to participate, if their child's elementary school included grades JK to Gr. 3. The questionnaire is anonymous. No parents or schools will be identified in the results.

Please click on the link below to begin the survey:

http://www.surveymonkey.com/s.aspx?sm=D1xqRGKBmyK6BHmlte7cg_3d_3d

Thanks so much. If you have any questions, please feel free to phone or email me.

Gay Stephenson
Research and Website Manager
People for Education

Online Parent Survey

Parents, you can help!

The Canadian Education Association is conducting a study to help the Ministry of Education find out about the impact of reducing class sizes in Jr. Kindergarten (JK) to Grade 3.

If you had one or more children in an elementary school last year, (2007-08), please fill out this questionnaire.

We want to hear from parents of children in ALL GRADES in elementary schools that include JK to Grade 3.

We ask that you answer the questions based on your own experience. And we especially appreciate any written comments you might have. Your responses are anonymous and will be kept confidential. We will not ask for your name or the name of your school. No parents or schools will be identified in the results.

Please fill out these questions by December 3rd, 2008.

School board staff, principals and teachers from across the province have been included in this research. Our full report will be presented to the Ministry of Education by the end of this year.

Your participation is very important! Thank you very much for your time and effort.

Nina Bascia, Ph.D.

Principal Researcher, The Effects of Ontario Primary Class Size Reduction and Policy and Professor, OISE, U of T.

.....

What is the name of your school board? (Select one)

How many students are in your school?

Under 100

101 to 250

251 to 400

401 to 550

551 to 700

701 to 850

Over 850

My school is located in: (city or town)

Note: If you have more than one child attending elementary school, answer here for your first child. Then please complete another questionnaire for each of your other children in JK to Grade 8.

During the last school year in 2007-08:

This child was attending elementary school.

This child was in a Junior Kindergarten to Grade 3 class.

This child was in a Grade 4 to Grade 8 class.

This child had special learning needs and worked with a resource teacher and/or educational assistant.

This child was taught primarily in a special education classroom (self-contained special education class).

This child was in a split grade.

Comment:

Please describe what you observed as your child's experience during the 2007-08 school year, as compared to prior years, for each of the following questions.

My child had learning difficulties:

My child was engaged in learning:

My child had behavioural challenges.

My child had positive social interactions with peers:

	More	About the same	Less	Not applicable
My child had learning difficulties:				
My child was engaged in learning:				
My child had behavioural challenges.				
My child had positive social interactions with peers:				

Is there anything else you would like to tell us about your child's experience in school in 2007-08 that you believe is related to the process of reducing class sizes in JK to Gr. 3?

Please describe your own discussions or conversations with staff at school during the 2007-08 school year, as compared to prior years, for each of the following questions.

The teacher's knowledge of my child's learning needs and abilities was:

The quality of discussion with the teacher(s) about my child's learning needs and abilities was:

The quality of discussion with the school principal or VP about my child's learning needs and abilities was:

	Better	About the same	Not as good	Does not apply
The teacher's knowledge of my child's learning needs and abilities was:				
The quality of discussion with the teacher(s) about my child's learning needs and abilities was:				
The quality of discussion with the school principal or VP about my child's learning needs and abilities was:				

Is there anything else you would like to tell us about your conversations with staff at the school that you believe is related to the process of reducing class sizes in JK to Gr. 3?