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# Ontario: Harnessing the Skills of Tomorrow

Not only do Canadian students perform well in PISA, they do so despite their socio-economic status, first language or whether they are native Canadians or recent immigrants. Canada has achieved success within a highly federated system that accommodates a diverse student population. This chapter examines Canada's success through an in-depth look at the education system of the country's largest province, Ontario. It describes how the province combines a demand for excellence with extensive capacity-building, and fosters a climate of trust and mutual respect among all stakeholders.



## INTRODUCTION

Canada is a relative latecomer to the top of the international rankings. Unlike Japan and Korea, it was not a clear leader in international assessments in the 1980s and 1990s, and it was only after the release of the PISA rankings in 2000 that Canada found itself a leader of the pack (Table 6.1). These results have been confirmed in subsequent administrations of the PISA tests, which have revealed that Canada both has strong mean results as well as less dispersion among its socio-economically advantaged and disadvantaged students than many other nations (OECD, 2010a).

Understanding the basis of this strong performance is not easy for two reasons. First, Canadian education is governed at the provincial level with a limited to non-existent federal role, and thus each of the ten provinces and three territories has its own history, governance structure, and educational strategy. Second, because Canada is a newcomer to educational success, there has only recently been an influx of visitors, scholars, and other interested observers, so the kind of secondary literature that one could build upon to try to tell a story of Canadian success as a whole is only beginning to be built up. That said, there has been substantial attention paid, over the past two decades, to some of the reforms instituted in Alberta, and the recent educational improvement strategy of the nation's largest province, Ontario, will be the focus of this chapter. Before turning to Ontario, however, it is important to provide some overall information about the wider Canadian context.

**Table 6.1 Canada's mean scores on reading, mathematics and science scales in PISA**

	PISA 2000	PISA 2003	PISA 2006	PISA 2009
	Mean score	Mean score	Mean score	Mean score
<b>Reading</b>	534	528	527	524
<b>Mathematics</b>		532	527	527
<b>Science</b>			534	529

Source: OECD (2012).

## UNDERSTANDING THE CANADIAN SYSTEM

As mentioned above, the most striking feature of the Canadian system is its decentralisation. It is the only country in the developed world that has no national ministry, or minister, of education. Education is the responsibility of its ten provinces and three territories. Four of those provinces and territories hold approximately 80% of the Canada's five million students: Ontario (two million), Quebec (one million), British Columbia (610 000), and Alberta (530 000). It should be noted, however, that over 40 years ago Canadian ministries and departments of education created the Council of Ministers of Education (CMEC), through which provinces and territories work collaboratively on projects and initiatives of mutual interest through a consensus-building process.

Responsibility within the provinces and territories is divided among the central provincial government and locally elected school boards. The provincial government is responsible for setting the curriculum, determining many major policies for schools, and providing the majority, if not all, of the funding for schools (though funding patterns vary across provinces and territories). The minister of education is chosen by the premier from elected members of the provincial legislature, and becomes a member of the ruling party's cabinet. The deputy minister of education is a civil servant who carries much of the operational responsibility for the workings of the department.

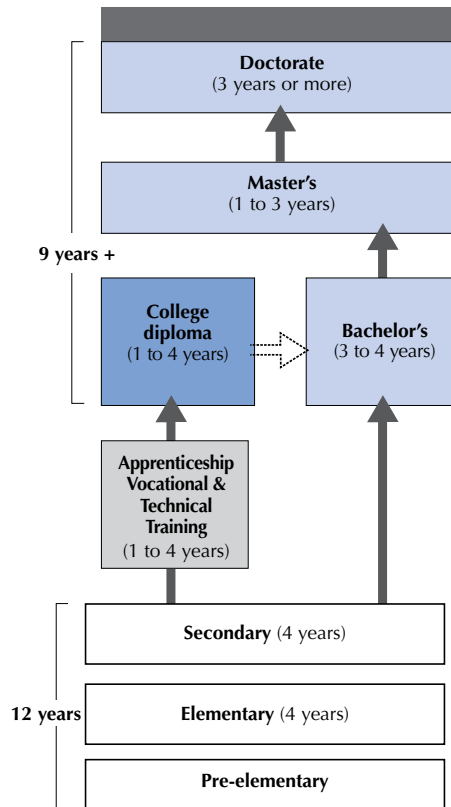
Local school boards employ staff and appoint principals and senior administrators. They also set annual budgets and make decisions on some programmes. Over time, the number of districts has shrunk considerably through processes of consolidation. In Alberta, for example, there used to be more than 5 000 districts; by the end of the 20th century, the number was less than 70. There is no interim level of administration between the provinces/territories and districts in Canada – they work directly with one another on province-wide initiatives.

Teachers are unionised in Canada, and the unit of collective bargaining varies across provinces and territories: some bargain at the local level, some at the provincial level, and some are mixed. Teacher training takes place in universities. Standards for certification were traditionally set by the provinces and territories. In 1987, however, British Columbia granted to its College of Teachers exclusive responsibility for entry, discipline and professional development of teachers, and in 1996, Ontario followed suit, creating an Ontario College of Teachers with similar functions. The Ontario College has a 37-member governing council with 23 teachers elected by the college, and 14 members appointed by the Ontario Minister of Education. In both cases, more traditional bread and butter issues continue to fall under collective bargaining and are separate from the work of these self-regulating bodies.



The Canadian system is also internationally distinctive for its efforts to balance respect for diversity of language and religious affiliation with province and territory-wide educational goals. Section 93 of the Constitution Act 1867 sought to protect parents' rights to send their children to Protestant and Catholic schools, subject to provincial control over funding and teachers, but using public funding. This structure means that these schools and school boards in Canada are within the public system and under partial control of the Ministry of Education, not in the private sector. These schools were named "separate schools" in Canada West and "dissentient" schools in Canada East. There is variation across provinces and territories in exactly how these arrangements have evolved – in some provinces/territories, like Alberta, Ontario, and Saskatchewan, public and dissentient separate schools exist; in others, like Manitoba and British Columbia, parents seeking a Catholic or Protestant education have to send their children to private schools, though even these often receive some degree of public funding.

■ Figure 6.1 ■  
**Canada's education system organisation**



**CANADIAN SUCCESS FACTORS**

In addition to a strong welfare state and a high cultural value placed on education, observers cite three factors as important to Canada's strong international performance:

- The establishment of a common curriculum within each of the provinces and territories. Curricula are developed by the respective ministries of education, in a process of extensive consultation with groups of teachers and subject matter experts. In some provinces and territories these curricula are fairly detailed, whereas in others they serve more as guidelines of what should be learned and when. While there is certainly wide variation in the degree to which these curricula actually penetrate classroom practices, they do provide basic guidance as to what should be learned by which students at what ages. In cent years, some of the smaller provinces in the west have started co-ordinating these efforts to establish greater uniformity across provinces, similar to consortia of states in the United States working together towards common core standards. Recent PISA results have shown that Alberta is the highest scoring province, and the Alberta Ministry ascribes this success in part to the quality of its curriculum. The collaboration between Canadian jurisdictions on curriculum matters goes even further in some cases where some territories draw heavily on curriculum documents from neighbouring jurisdictions.



- The high degree of selectivity in choosing teachers. The 2007 McKinsey report on PISA leaders emphasised that one factor which differentiated PISA leaders from those further down the chart was the degree to which teacher education programmes were able to draw their students from the top end of the talent pool (Barber and Mourshed, 2007). According to Ben Levin, former deputy minister in Ontario and a widely cited scholar on Canadian education, Canadian applicants to teachers colleges are in the “top 30%” of their college cohorts. The education within Canada’s teacher training institutions is seen by some to be of high quality; Levin estimates there are perhaps 50 across Canada, as opposed to hundreds across the United States, which allows for greater monitoring of training quality. Other respondents agreed that teacher selectivity was high, but were more sceptical about the quality of the training institutions.
- Equalised funding. Since funding responsibility lies entirely, or almost entirely, at the province/territory level, they are able to provide funding to offset the greater neediness of some of their students. Public funding for education comes either directly from the provincial or territorial government or through a mix of provincial transfers and local taxes collected either by the local government or by the boards with taxing powers. Provincial and territorial regulations, revised yearly, provide the grant structure that sets the level of funding for each school board based on factors such as the number of students, special needs, and location. Funding from the provinces and territories to districts is generally split into three categories: block grants based on number of students; categorical grants which are either used to fund particular programmatic needs (e.g. special education) or to help those districts struggling to provide basic services (e.g. more geographically-dispersed districts need more funds for transportation); and equalisation funding, which is used in the districts that retain some local funding to top up the poorer districts.

### ONTARIO: REFORMING FOR THE FUTURE

Between 2003 and 2010, Ontario was a world leader in its sustained strategy of professionally-driven education reform. Initiated by Premier Dalton McGuinty on his election in 2003, the Ontario strategy has achieved widespread positive results in increasing elementary literacy and numeracy, improving graduation rates, and reducing the number of low-performing schools. The constellation of elements that came together to fuel the success of this strategy is described below.

Ontario is the largest province in Canada, with an area of about 1 100 000 square kilometres and a population of approximately 13 million: 40% of all Canadians. It has a major role in the Canadian economy contributing about 37% of the country’s GDP. It is a highly urbanised province, with 80% of students located in metropolitan areas. In terms of diversity, 27% of Ontario students are born outside of Canada and 20% are visible minorities. Toronto, the main city in Ontario, is one of the most diverse cities in the world.

There are four sets of locally elected school boards in Ontario, in order to fulfil Canada’s constitutional requirements for public support of minority languages and religious minorities:

- 31 English public school boards serve about 1.4 million students;
- 29 English Catholic school boards serve about 590 000 students;
- 8 French Catholic boards have 70 000 students; and
- 4 French public boards have 23 000 students.

This means that any given area of the province will be served by four boards, allowing for some degree of choice in the system. There are about 5 000 schools in the public system; there is no public funding for private schools.

### Focusing on a few clear goals

From the beginning, central to Ontario’s theory of change was that systemic reform across several layers of government and 5 000 schools would require a steady and coherent focus on a very limited number of goals. Too often, school systems are easily distracted and drawn into many questions and controversies that have little or no relationship to improving student learning and educational attainment. McGuinty had made two central commitments that guided the work of the ministry: to increase literacy and numeracy performance in elementary schools, and to increase the high school graduation rate. The government also set ambitious, but realistic, long-term numerical targets for each of these goals: to increase the proportion of students achieving at the provincial standard – a high standard, equivalent to a B grade – in reading, writing, and mathematics from 55% to 75%; and to increase the high school graduation rate from 68% to 85%.

To achieve these goals, the ministry introduced a multifaceted strategy for improvement based on a clearly articulated hypothesis: that system pressure combined with targeted school-level support would yield greater results than top-down pressure accompanied by punitive consequences for persistently low performance. This work was informed by a careful analysis of the failings of previous initiatives. Most top-down initiatives, they concluded, were unable to achieve deep and lasting changes in practice because: 1) the reforms were focused on things that were too distant from the instructional core of teaching and learning; 2) the reforms assumed that teachers would know how to do things they didn’t know how to do; 3) blizzards of conflicting reforms asked teachers to do too many things simultaneously; and 4) teachers and schools did not buy-in to the reform strategy.



To achieve sustained change, then, would require:

- strategies directly focused on improving the act of teaching;
- careful and detailed attention to implementation along with opportunities for teachers to practise new ideas and learn from their colleagues;
- a single integrated strategy and one set of expectations for teachers and students; and
- a commitment to build partnerships with teachers and school boards.

Both province and district policies would need to be crafted with all of these goals in mind.

### **Building support among teachers, unions, and other stakeholders**

Of all of these points, the last one (gaining teacher support) was perhaps most important to the new strategy. To improve results across all of these points, the last one (gaining teacher support) was perhaps most important to the new strategy. To improve results across 5 000 schools would require a continuous and sustained effort on the part of hundreds of thousands of teachers to try to improve their practice. This, they thought, could only happen if teachers were “onside” (to use their word).

To this end, the ministry drew a sharp contrast between its capacity-building approach to reform and the more punitive versions of accountability used in some other countries. Its focus was on supporting the continuous improvement of all schools, with special attention and support to the lowest performers. In that context, it did not use public reporting of results to shame or blame, but to mobilise additional resources and assistance to struggling schools, while being accountable to parents and the broader community for results.

Politically, it is clear that the ministry acted extremely skilfully to engage the support of teachers, schools, and unions in a shared vision of reform. Appointing Gerard Kennedy as Education Minister (widely seen as someone who supported public education and was sensitive to the needs of teachers) and Ben Levin (a deeply knowledgeable academic and practitioner) as his Deputy signalled a commitment to a more consultative, coalition-building style of leadership in education. The Deputy Minister met quarterly with the major teachers’ unions, superintendents’ organisations, and principal associations to discuss ongoing reform strategies. The ministry also created the Ontario Education Partnership Table where a wider range of stakeholders could meet with ministry officials two to four times a year; this led to working tables, where smaller groups of stakeholders worked in more detail on particular issues.

Of particular importance to these efforts was the signing in 2005 of four-year collective bargaining agreements between the four major teachers’ unions and provincial trustee associations. These agreements were the result of a set of provincial dialogues convened by the government, and which created a framework that advanced the government’s educational improvement strategy while addressing teacher workload issues. Specifically, McGuinty had pledged to increase investments in elementary education and reduce class size, which provided the funding for 5 000 new elementary teaching positions in music, art, physical education and languages, while providing regular classroom teachers with additional preparation time. The government also provided money for hiring a full or part-time Student Success Officer (see below) in each secondary school. These agreements thus both pushed forward the educational agenda and created a sustained period of labour peace that allowed for a continued focus on educational improvement.

### **Creating the structures for solid implementation**

There were two major initiatives pursued by the Ontario Education Ministry over this time period: the first focused on elementary Schools, the second on high schools. These initiatives, however, need to be seen in the context of a broader government commitment to the education and development of children that begins in the pre-school years and culminates in post-secondary success in higher education or the workforce.

### **Reforming literacy and numeracy in elementary schools**

The ministry’s first initiative focused on literacy and numeracy, and its strategy revolved around the creation of a new school assistance unit, the Literacy and Numeracy Secretariat (LNS; Box 6.1). The aim here was to increase reading and maths results in elementary schools. Through a deep capacity-building strategy, this initiative has succeeded in raising the proportion of students meeting the provincial standard on provincial assessments from roughly 55% (2003) to roughly 68% (2010) in reading, mathematics and writing in third grade. Similar gains of about 10-12 percentage points are apparent in the same subjects in sixth grade.

### **Reducing high school dropouts**

The second ministry initiative was called Student Success and aimed to increase the high school graduation rate. From the outset, the Student Success strategy was comprised of three main pillars: increased focus on literacy and numeracy achievement; clearly



### Box 6.1 **Building the capacity for reform: the Literacy and Numeracy Secretariat**

The LNS was a new 100-person unit responsible for building the capacity and expertise to do the work in schools. Organisationally independent of the ministry, it was able to start afresh without the usual bureaucratic obstacles. The ministry also required that teams be created in each district and each school in order to lead the work on literacy and numeracy. By so doing, they paired external expertise with sustained internal time and leadership to push the initiative. Avis Glaze, who was responsible for leading the LNS, said that the effort succeeded in part because of its field base:

“We recruited a new team of people who had deep experience in the field – teachers, principals, subject matter specialists – people who were deeply respected by teachers and schools, and were not seen primarily as representatives of the department. This mini-organisation was largely based in the field – we had six regional teams plus one French language team, each of six to eight people. This means that the majority of the people in the Secretariat were actively working in the field, building relationships with schools, principals and teachers, rather than in the home office back at the Ministry.” (Interview conducted for this report).

demarked pathways to post-secondary destinations; and supportive, caring school communities designed to strengthen student engagement. The insight behind this programme was that the road to dropping out of high school starts early: by tracking students who have failed one or more courses in ninth grade, it is possible to identify potential dropouts quickly.

For this initiative, the government pursued a different strategy. Rather than sending out a team from the ministry, they gave money to each district to hire a Student Success Teacher responsible for co-ordinating efforts in their district. The ministry also gave money to allow the district leaders to meet and share strategies. Again each high school was given support to hire a provincially-funded Student Success Teacher and required to create a Student Success team to track data on which students failed one or more courses in ninth grade and then design appropriate early interventions. Programmes of “credit recovery” were also created, allowing students to make up the parts of courses that they failed. These strategies have helped increase graduation rates from 68% to 75%.

### **Avoiding top-down mandates and clarifying roles**

Another element of success was that the ministry tried to ensure that reform was really a two-way street, rather than simply something imposed from the top. As described by Michael Fullan, an internationally known expert on education reform who served as Special Advisor to the Ontario Premier and Minister of Education, this was one of the lessons learned from the British model:

*Michael Barber in the English strategy eventually called their strategy ‘Informed Prescription.’ So the idea of Informed Prescription was that you do your homework at the centre, you get informed and then you pretty much prescribe the curriculum and the instructional methods and use of time, including such things as the literacy hour. By contrast, when we set up our Secretariat, we said to the field, to our 72 districts, ‘Don’t worry, we are not going to come up with Informed Prescription and start advocating particular usages. Rather, what we are going to do is join in partnership with you in the field, the sector, and identify good practices and consolidate those and spread them. They might eventually come to have a certain kind of status that comes close to being non-negotiable, but we are not in the business at the centre of telling you what to do. We are in the business of jointly co-discovering it.’ So that’s what we did and that’s how we did it. (Interview conducted for this report)*

The ministry also pursued a clear theory of comparative advantage in terms of who should do what in implementing to the reforms. The role of the ministry was to set clear expectations and targets, to provide funding, to create a working collective bargaining agreement that would support improved teaching and learning, to provide external expertise, and to intervene with support in struggling schools. The role of the district was to align its personnel and hiring policies with the overall strategy, and to support the schools as they went through continuous processes of learning. Much of the real action had to happen in schools, which was where teachers worked in communities to think about problems of practice, and to learn from one another. While the mission and sustained pressure came from the top, there was a clear recognition that it was at the school level in which change had to happen, and that the role of other actors in the system was to support the learning and change that had to happen there.

### **Cultural support for universal high achievement by a diverse population**

Ontario attracts almost one-third of all immigrants to Canada, and immigrant children succeed at high levels in Ontario’s schools. PISA results suggest that within three years, Canadian immigrants average a score of 500 (OECD average) on the PISA assessment,



which is remarkably strong by international standards (OECD, 2010). For comparison's sake, on the 2003 PISA reading survey, Canadian first-generation immigrants scored an average of more than 510 points, ranking second, compared to less than 460 points in the United States and less than 430 points in France (OECD, 2003). Canada is also one of very few countries where there is no gap between its immigrant and native students on the PISA. Second-generation Canadians perform significantly better than first-generation Canadians, suggesting that the pattern is one of progress over time. Finally, Canada is one of only two countries (along with Australia), where there is no difference in performance between students who do not speak the language of instruction at home and those who do.

The performance of Ontario's immigrant student population mirrors that of the nation and largely reflects the provincial government's investment in creating diverse, equitable, and inclusive learning environments, and engaging students, parents, and communities in meaningful ways. It is also a reflection, however, of the high expectations immigrant families have for their children, and of the fact that those high expectations seem by and large to be held by educators as well. Because Canada has historically seen its immigrants as important members of Canadian society, crucial to the continuing development of the country, and because its immigration policies reflect those values, schools see their role as integrating children into the mainstream culture as rapidly as possible. If anything, the value placed on high achievement for immigrant children seems to have positive spillover effects onto the expectations for Canadian-born children, rather than the other way round.

### **A coherent system based on shared understanding and common purpose**

Although some observers complained about the sheer number of initiatives launched by the McGuinty government over the years, it is apparent that the Ontario reform designers worked hard to develop and implement a systemic response to the problems and challenges they inherited. An important, but often underestimated, barrier to achieving system coherence is the lack of a shared understanding among key stakeholders about how key government leaders see the problems of the system and what lies behind the policies and programmes they have designed in response. The McGuinty government worked tirelessly to build a sense of shared understanding and common purpose among key stakeholder groups, and consequently their two major systemic initiatives – the Literacy and Numeracy Secretariat (Box 6.1) and the Student Success/Learning to 18 strategy – enjoyed broad public understanding and support.

### **A strong focus on educator quality**

Ontario's reforms rested heavily on the government's confidence in the quality of the province's teaching force. The Literacy and Numeracy Secretariat decided not to follow England's "informed prescription" model, but rather to put seed money into the field to encourage local experimentation and innovation. This sent a strong signal that teacher-generated solutions to weaknesses in reading and maths performance were likely to be more successful than solutions imposed from above. The fact that teaching has historically been a respected profession in Canada, one that continues to draw its candidates from the top one-third of secondary school graduates, meant that the government had a solid basis for believing that its trust would pay off. The Student Success Teachers worked in teams to develop workable solutions for individual students because they were capable of doing so successfully. This show of trust in the competence and professionalism of the teaching force was an essential ingredient in forming a partnership between the profession and the government.

Ontario has paid special attention to leadership development, especially for school principals and vice-principals. In 2008 the government initiated the Ontario Leadership Strategy, based upon the Ontario Leadership Framework that spells out the leadership practices and the skills, knowledge and attitudes of effective leaders. Among the elements of the strategy are a strong mentoring programme that has now reached over 5 000 principals and vice-principals and a new province-wide performance system for school leaders. Additionally, funding and other resources have been provided for districts to develop and implement a Board Leadership Development Strategy that includes talent development and succession planning to ensure a pipeline of strong, committed candidates to fill leadership positions.

### **Strong and persistent leadership**

All accounts of Ontario agree that sustained political leadership by Premier McGuinty has been fundamental to the success of the reforms. McGuinty ran on a platform of becoming the "education premier", and throughout his election, and re-election in 2007, he has kept a steady focus on educational improvement. He built on the foundations of national assessments and accountability that had been established by previous governments. McGuinty was personally involved in the reforms, and has met repeatedly with key educational stakeholders over the course of his premiership to emphasise the importance of the reforms. Michael Fullan, a major architect of the strategy, said of McGuinty during interviews for this report:

*The Premier is key, obviously. If Premier McGuinty had left it would have been a different story. I said to him in the first term, when you get re-elected...[don't] lose the plot, fail to keep the sustainability and focus on it. And the week after he got re-elected, he said to me, Not only am I not going to lose the plot, I'm going to intensify it, become even more committed and more confident and more impatient.*



The combination of skilled, sustained political leadership from the Premier and a succession of capable ministers, and very strong professional leadership from Ben Levin and his successors in the Deputy Minister role, accounts for a big part of Ontario's success. While the initial decision to create the Literacy and Numeracy Secretariat outside the bureaucracy suggests that the political leadership did not have confidence that the Education Department could carry out such an ambitious, high-profile initiative, one of Levin's key goals was to make the department more attentive and responsive to the field, and it seems he and his successors have made significant progress in that regard, as evidenced by the decision to re-integrate the LNS into the ministry.

### Enhanced professional accountability

Ontario has managed to balance administrative and professional accountability well. The McGuinty government made no attempt to dismantle or weaken the assessment regime put in place by the previous government, and it has consistently communicated the message to the field and the public that results matter, as defined by performance on the provincial assessments. However, its response to weak performance has consistently been intervention and support, not blame and punishment. The underlying assumption of Ontario's leaders seems to be that teachers are professionals who are trying to do the right thing, and that performance problems are much more likely to be a product of lack of knowledge than lack of motivation. Consequently, teachers seem to own more responsibility for performance than is often the case in countries with a more punitive approach to external accountability. Teachers' success is celebrated when they are included in provincial Innovation Awards along with members of other professions and recognised by the Premier's Awards for Teaching Excellence.

## HARNESSING THE SKILLS OF TOMORROW, IN BOTH STUDENTS AND TEACHERS

In his 2008 budget Premier McGuinty asked a research institute at the University of Toronto to undertake a study of the changing composition of Ontario's economy and workforce and to examine historical changes and projected future trends affecting Ontario. The aim was "to provide recommendations to the province on how to ensure Ontario's economy and people remain economically competitive". The resulting report, *Ontario in the Creative Age* (Florida and Martin, 2009), made a powerful case for the centrality of creativity and innovation as key to Ontario's future prosperity, an argument with clear implications for education as well as for other units of government more directly focused on workforce development and the economy. In subsequent speeches the Premier has continued to sound the theme that the future belongs to places that can harness the creativity, skills, knowledge, and drive of their people. In this section we describe some of the strategies Ontario has put in place to develop these elements through the education system.

### Strategies for developing critical thinking

One of the most striking things about Ontario's success in moving the needle on its most important measures – academic proficiency in the elementary grades, graduation rates in the high schools – has been that these gains have not been achieved as a consequence of narrowing the curriculum or focusing on teaching to the test. Rather, this progress has occurred in the context of a deliberate province-wide focus on ensuring that all schools offer a rich curriculum and an instructional focus on the development of critical, higher-order thinking skills. This emphasis on critical thinking is not limited to language arts, mathematics, and science, but permeates all subjects in the Ontario curriculum, as does the development of metacognitive skills (thinking about thinking). It is also woven into the fabric of everyday life in Ontario's schools. It can be seen in the curriculum documents that frame the goals of education in the province, the professional development supports offered to teachers, the structure and diversity of programme offerings for students in the high schools, and in the language the government uses in its publications to communicate with Ontario parents and citizens. It is clear from a recent set of interviews with Toronto-area administrators and from reviewing a set of teacher-developed units of study that these more ambitious learning goals for young people – what economists Frank Levy and Richard Murnane refer to as "expert thinking" and "complex communications" – exist not simply in official documents but are making their way into Ontario classrooms (Levy and Murnane, 2004).

Early in Premier McGuinty's second term the government released a policy paper entitled *Reach Every Student – Energizing Ontario Education* (Ontario Ministry of Education, 2008). Rather than declaring victory on his three major first-term priorities and moving on to a new set of initiatives, the government asserted its intention to go "deeper and wider" on literacy and numeracy and get 75% of students to an advanced level on these skills. It defined advanced literacy for the 21st century as follows:

*Literacy is defined as the ability to use language and images in rich and varied forms to read, write, listen, view, represent, and think critically about ideas. It involves 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)*





The government's definition of advanced numeracy is equally focused on higher order thinking and application, as evidenced by the following sentence:

*Through mathematical activities that are practical and relevant to their lives, students develop mathematic understanding, problem-solving skills, and related technological skills they can apply in their daily lives and in the future workplace.*  
(Ontario Ministry of Education, 2008)

### Allowing children to customise their education

In Ontario, advanced literacy and numeracy skills are framed as a means to enable students to solve real-world problems. This focus on application of knowledge and skills is accompanied by a very strong commitment to an individualised, customised approach to education. The Reach Every Child motto assumes that each child is different and that no single approach can work for all students. This philosophy can be seen most clearly in Ontario's high schools, where as part of its Student Success Strategy the government has been steadily expanding the array of choices and options available to students, including dual credit programmes, co-operative education, youth apprenticeship, and most prominently, the Specialist High Skills Majors (SHSM) programme (Box 6.2).

#### Box 6.2 **Aligning school work with the real world**

The Specialist High Skills Majors (SHSM) programme offers high school juniors and seniors an opportunity to customise their educational programme by aligning their academic courses with an occupational area they want to explore. There are 18 majors, covering a broad range of occupational sectors, e.g. arts, construction, energy, environment, ICT and sports. Each major is differentiated within the design of the programme to meet a wide range of student skills and interests. All school districts offer at least one major, and some schools offer as many as seven. The idea is to strengthen student engagement and motivation both by making language arts and maths courses more relevant to student interests by drawing on examples and projects linked to the major and by providing more opportunities for experiential learning through job shadowing and internships. Students who meet the requirements of the programme get a red seal embossed on their high school diploma, recognition for SHSM credits on their transcript, and an SHSM record or portfolio of their accomplishments. SHSM credits can count toward post-secondary education or an occupational certificate. The programme has grown exponentially since its inception in 2006-07, when it enrolled 600 students in 27 programmes in 44 schools. In 2010-11 over 28 000 students are enrolled in 1 050 programmes in 540 schools. This has now become a mainstream programme.

In order to receive credit toward their high skills major, students must participate in specially designed "contextualised learning activities" (CLAs) in one of their academic subjects. Contextualised learning makes learning more relevant for many students because the activities relate to a recognisable issue and the activities are set in the context in which they would be used in real life. This approach makes knowledge concrete and easier to learn while engaging young minds in critical thinking and problem solving.

These CLAs draw on knowledge and skills relevant to the occupational sector while meeting the curriculum requirements of the course. The CLAs are created by teachers, and after review for accuracy and bias by the ministry are then made available to other teachers. Box 5.3 presents two examples which highlight how contextualised, applied learning can build critical thinking skills and allow for student creativity in responding to the assignment.

### A focus on big ideas

The SHSM programme is primarily a strategy for engaging young people for whom an academics-only curriculum might not be compelling enough to hold them in school through graduation. But what curricular strategies does Ontario employ in the earlier grades to help all students see the relevance of what they are studying to the world around them, and to encourage them to move beyond the mastery of facts to the development of higher order thinking skills?

Ontario's Grades 1-8 Science Curriculum provides a powerful example of the ministry's orientation. The Science Curriculum document begins by setting out three broad goals for science education in these grades, the first of which is to relate science and technology to society and the environment (Ontario Ministry of Education, 2007). The document then describes six fundamental concepts – matter, energy, systems and interactions, structure and function, sustainability and stewardship, and change and continuity – around which the science curriculum is organised, concepts that not only provide a framework for acquiring scientific



### Box 6.3 Building critical thinking through real-world activities

**Case 1:** The Ethanol Debate is designed for a 12th-grade English class with students majoring in transportation or environment. It extends over five 75-minute classes and meets a specified set of reading, writing, and communications standards. After an initial introduction to the topic, students must complete five exercises: 1) a statistics and graphing exercise involving four sets of ethanol statistics; 2) a charting exercise in which students list and categorise all of the foods in their kitchens to identify those using corn products; they then speculate about the effect on food production if corn was diverted from food production to ethanol; 3) a corn flow chart on which they have to plot the impact of one event (e.g. a rise in corn prices) on other related factors, and then write how what they have learned might affect their future choices about the types of food they consume; 4) students assess a list of “ethanol stakeholders” to decide which stakeholders would favour or oppose ethanol use and why; and 5) students write a persuasive essay in favour or against the use of food crops for the production of ethanol, providing at least three supporting arguments.

**Case 2:** The arts fundraiser. In this CLA example, an ICT class for students majoring in arts and culture must plan a fundraiser for an arts organisation in their community. The event planning requires students working in teams to develop an organisational structure, deal with budgeting and staffing issues, develop a marketing plan, address a variety of logistical issues (permits, security, traffic control), and ultimately prepare a Power Point presentation of the plan. The entire class then works together to implement the strongest plan, with every student assigned a task. The activity culminates with a post-event analysis of every aspect of the fundraiser. In addition to some of the occupationally specific skills developed through this activity (e.g. use of spreadsheets for budgeting), the exercise is also designed to promote entrepreneurship, organisational skills, creativity and communication skills.

knowledge, but also for integrating that knowledge with other subject areas. The concepts themselves are less unusual than what comes next: a focus on “big ideas”, described in the document as:

...broad, important understandings that students should retain long after they have forgotten many of the details of something they have studied...Developing a deeper understanding of the big ideas requires students to understand basic concepts, develop inquiry and problem-solving skills and connect these concepts and skills to the world beyond the classroom. (Ontario Ministry of Education, 2007)

An understanding of big ideas encourages appreciation of the large and emerging issues that citizens in Ontario will have to deal with, such as those related to environment or the economy.

According to several recently-interviewed district leaders, the focus on big ideas promotes a cross-disciplinary focus on teaching for understanding. In the words of one Education Director, “We are planning around the big ideas. Rather than giving system-level messages that ‘thou shall cover all the expectations of the curriculum’, we’re helping teachers move away from that kind of checklist mentality and cluster the expectations around a single compelling idea.”

Virtually all the directors interviewed mentioned the Teacher-Learning Critical Pathway (T-LCP) model as an important vehicle for organising the kind of deeper learning and inquiry that the “big ideas” focus is designed to promote (Hine and Maika, 2008). This approach is sponsored by the Literacy and Numeracy Secretariat (LNS; Box 6.1) and seems to have gained considerable traction across the province. As described in an article by two Student Achievement Officers from the LNS (Hine and Maika, 2008), the T-LCP is a strategy for aligning the work of all professional learning communities in a school around a single “big idea” that engages students.

The T-LCP process begins with a close look at student achievement in the school in order to identify the area of greatest need. The next step is to analyse current teaching practice in relation to that area of need, and then to build clusters of expectations and a set of criteria for determining what successful student work would look like against those expectations. Once a “big idea” is selected, the faculty then plan a six-week teaching block and build collective understanding of how they will teach and what kind of classroom assessment they will use. Throughout the six weeks teachers will together assess student work against the previously-determined criteria, monitor the progress of individual students, make mid-course corrections as they go, and engage in an extended review of the evidence of student learning.



This is a way of promoting teacher learning as well as student learning by focusing discussion and action on examining “the interdependence of curriculum expectations, assessment of and for learning, thinking strategies, teaching strategies, and reflection” (Hine and Maika, 2008).

### **Collaborative inquiry for teachers’ professional development**

The research literature suggests that most professional development has very little impact on changing teacher practice, and consequently virtually no impact on improving student outcomes (Hill, 2007). Teachers in the United States refer derisively to “drive-by” or “spray and pray” forms of professional development, in which hundreds of teachers are herded into a vast auditorium at the end of a tiring day of teaching to be treated to a lecture by a well-known guru urging teachers to adopt some new classroom strategy guaranteed to elicit more student engagement in learning.

Ontario has placed its bets on a much deeper, more sustained approach to teacher learning, one that is less dependent on external “experts” and more focused on providing the time and support for teachers in their own collaborative inquiry. T-LCP is only one example of this innovative kind of professional development that is spreading across Ontario. An unstated but implicit premise undergirding Ontario’s push toward a more ambitious form of learning for its students has been that if teachers are engaged in professional learning focused on strengthening their own critical thinking and inquiry skills, they are more likely to model such learning in their own teaching practice.

In the words of a director whose district has shown strong improvement in mathematics in the last few years, “I believe it’s the kind of focused capacity-building and support for collaborative inquiry that makes the difference when you are talking about the development of critical and higher order thinking.” This director goes on to generalise about the reasons for high performance in Ontario:

*I would suggest that the reason why as a province we are doing better on PISA is because in the last seven years all of us have moved away from the notion of ‘throw all the teachers into a big room, talk to them about problem-solving in math or comprehensive literacy or individualized instruction and then send them home and expect them to do something different.’ Today you’d be hard pressed to find any boards, including mine that do this. Now we use our professional development dollars for collaborative inquiry, where professionals get around the table, using protocols to focus deep discussion on analysis of student work, and then moving from reflection to figure out what we are going to do next.*

*We’ve become much more concrete about asking for evidence from teachers about what they’re implementing and why they believe it is or isn’t working. We can talk about the concepts and we can understand the concepts, but implementation is the name of the game. We’re no longer providing professional development ‘programmes’; rather, we’re providing time, protocols, expectations, all of which leads to increased collaboration focused on students and their work. It’s a different use of release dollars and PD dollars than five or ten years ago and a different use of consultants, as well as a different set of expectations around the de-privatisation of practice.*

### **An emerging focus on creativity in assessment**

The contextualised learning activities described above are one example of the focus on creativity that is making its way into Ontario classrooms. A second more subtle, yet pervasive, example is the shift in the province’s assessment philosophy, as reflected in the 2010 Ontario Ministry of Education policy document, *Growing Success: Assessment, Evaluation, and Reporting in Ontario’s Schools*. In the introduction to the document, the commitment to a more individualised approach to assessment is stated as follows:

*The Ontario government is committed to enabling all students to reach their potential, and to succeed. Our challenge is that every student is unique and each must have opportunities to achieve success according to his or her own interests, abilities, and goals. We have defined high expectations and standards for graduation, while introducing a range of options that allow students to learn in ways that suit them best and enable them to earn their diplomas. We are proud that our students regularly place among the world’s best on international standardized tests. (Ontario Ministry of Education, 2010)*

The policy document also discusses the “learning skills and work habits” that teachers observe, assess and report on, and cites a list of 16 “habits of mind” developed by two American researchers, Costa and Kallick. Their list includes such things as “gathering data through all senses [...] creating, imagining, and innovating [...] responding with wonder and awe [...] thinking about thinking (metacognition) [...] and [...] taking responsible risks”. (Costa and Kallick, cited in Ontario Ministry of Education, 2010.)

In policy and through professional development, Ontario has put significant emphasis on assessment *for* learning and *as* learning, not just assessment *of* learning. Ontario teachers are expected to engage in assessment *for* learning by integrating assessment with instruction, developing a shared understanding of learning goals and success criteria with students, modelling effective learning, and providing feedback on student learning. Teachers engage in assessment *as* learning by helping all students to become creative



and critical thinkers and independent learners who are able to set individual goals, monitor their own progress, and reflect on their thinking and learning.

Ontario has sought a balance between using assessment information for system accountability and fostering the best in individualised teaching and learning. Ontario educators are encouraged to use their informed professional judgment to incorporate a range of evidence through conversations, observations and products, such as student portfolios and project work, in the assessment of student learning. Through the integration of assessment for learning with differentiated instruction, teachers empower students to make choices and express preferences in their learning and to explore more creative modes of inquiry. In the words of a principal of a relatively new K-8 school with a strong creative arts emphasis, “I’m not worried that the heat will be shut off at my school or that my budget will be slashed if my kids don’t perform well in math. We don’t have that degree of surveillance, so I feel free to experiment with things. I’ve always thought all education should be highly experimental.”

This particular principal is a devotee of Ken Robinson, a British writer and educator well known for his work on creativity and student learning. Citing Robinson’s view that creativity should be driving education, this principal has placed the arts at the centre of his school’s curriculum, bringing in arts specialists not only to engage students in making art, but more generally to promote a school culture that continuously experiments with different strategies to reach all students. In this school, at least, Premier McGuinty’s message of the importance of rewarding creativity and innovation seems to have taken hold, as it has in the high school SHSM programmes cited above.

### LESSONS FROM ONTARIO

If there is a big lesson from Ontario’s approach to critical thinking and creativity, it is that the development of these skills and habits of mind are not the subject of a single course or strand of the curriculum, but rather are woven into virtually all aspects of schooling. In the words of a senior ministry official, “critical thinking and creativity skills are embedded within our existing policies and initiatives.” This focus can be found across the curriculum as well as in the increasing attention Ontario schools have paid to the use of formative assessments at the classroom level. But most critically, this focus has driven deep, sustained investments in building the capacity of Ontario’s teaching force to work collaboratively to examine their own practices and the effect of those practices on the quality of student work. As Ontario’s curriculum, assessment and reporting system has moved from an emphasis on mastery of facts to an understanding of “big ideas” and the ability to apply one’s knowledge to the problems one confronts in everyday life, the teacher-learning agenda has kept pace accordingly. Interdisciplinary approaches, systems thinking, and collaborative inquiry into problems of practice is increasingly the norm in Ontario schools, strongly supported by the work of the Literacy and Numeracy Secretariat, the Student Success/Learning to 18 team, and other units in the ministry. Ontario’s strong PISA results would suggest that this emphasis on building the critical thinking and problem-solving skills of teachers has strengthened the capacity of teachers to enable the development of these same kinds of skills in their students.

There are important lessons as well from Ontario’s overall reform efforts, and it is important not to lose sight of them, for Ontario has created a broad set of enabling conditions that help account for the continuing strong performance of its schools. One such condition has been a major investment in the development of a comprehensive early learning and childcare system, now under the umbrella of the Ministry of Education. A second such condition is the strong cultural commitment to the importance of education. This seems to be an important underlying national value that helps explain Canada’s overall strong performance, despite the absence of any visible national governmental role in education. The commitment to the welfare of children, as expressed in Canada’s strong social safety net, helps explain why Ontario’s achievement gaps, while still worrisome, are nowhere near as profound as those in many other countries.



■ Figure 6.2 ■  
Canada: Profile data

Language(s)	English and French <sup>1</sup>
Population	34 109 000 (2010) <sup>2</sup> (8th largest in OECD) 13 210 667 (Ontario) <sup>3</sup>
Youth population	16.5% <sup>4</sup> (OECD average 18.5%)
Elderly population	14.1% <sup>5</sup> (OECD average 14.7%)
Growth rate	1.15% <sup>6</sup> (OECD 0.56%) <sup>7</sup>
Foreign-born population	19.6% <sup>8</sup> (OECD average 12.9%) <sup>9</sup>
GDP per capita	USD 38 914 <sup>10</sup> (OECD average 34 025) <sup>11</sup>
Economy-Origin of GDP	Other: 53.5%; Finance and insurance, real estate and renting and leasing and management of companies and enterprises: 20.9%; Manufacturing: 12.7%; Public Administration: 6.0%; Mining and oil and gas extraction: 4.5%; Agriculture, forestry, fishing and hunting: 2.4% <sup>12</sup>
Unemployment	8% (2010) <sup>13</sup> (OECD average 8.6%) <sup>14</sup>
Youth unemployment	11.6% (2011) (OECD average 16.2%) <sup>15</sup>
Expenditure on education <sup>16</sup>	5.1% of GDP (OECD average 5.8%) 3.2% on primary, secondary and post-secondary non-tertiary 1.8% on tertiary <sup>17</sup> education (OECD average 3.8%; 1.4% respectively) 12.3% of total government expenditure (OECD average 13.0%) 8.3% on primary, secondary and post-secondary non-tertiary 4.7% on tertiary education (OECD average 9%; 3.1% respectively)
Enrolment rate, early childhood education	24.1% <sup>18</sup> (OECD average 71.9%) <sup>19</sup>
Enrolment rate, primary education	98.7% <sup>20</sup> (OECD average 95.9%) <sup>21</sup>
Enrolment rate, secondary education	80.8% <sup>22</sup> (OECD average 82.9%) <sup>23</sup>
Enrolment rate, tertiary education	24.9% <sup>24</sup> (OECD average 27.0%) <sup>25</sup>
Students in primary education, by type of institution or mode of enrolment <sup>26</sup>	Public: 94.0% (OECD average 89.7%) Government-dependent private: 6.0% (OECD average 7.4%) Independent, private: (included in government-dependent private figure) (OECD average 2.9%)
Students in lower secondary education, by type of institution or mode of enrolment <sup>27</sup>	Public: 91.4% (OECD average 86.1%) Government-dependent private: 8.6% (OECD average 10.5%) Independent, private: (included in government-dependent private figure) (OECD average 3.4%)
Students in upper secondary education, by type of institution or mode of enrolment <sup>28</sup>	Public: 94.2% (OECD average 81.4%) Government-dependent private: 5.8% (OECD average 13.3%) Independent, private: (included in government-dependent private figure) (OECD average 5.3%)
Students in tertiary education, by type of institution or mode of enrolment <sup>29</sup>	Tertiary type B education: missing data <sup>30</sup> (OECD average public: 59.3%) Government-dependent private: 22.8% Independent-private: 17.9%)  Tertiary type A education: missing data <sup>31</sup> (OECD average public: 68.2%) Government-dependent private: 16.2% Independent-private: 15.5%)
Teachers' salaries	Average annual starting salary in lower secondary education: 34 443 USD (OECD average USD 29 801) <sup>32</sup> Ratio of salary in lower secondary education after 15 years of experience to GDP per capita: 1.54 (OECD average: 1.26) <sup>33</sup>
Upper secondary graduation rates	76% (OECD average 80%) <sup>33</sup>



## Notes

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15. OECD (2012), *OECD Employment Outlook*, OECD Publishing. Unemployed as a percentage of the labour force in the age group: youth aged 15-24.
16. OECD (2012), *Education at a Glance 2012*, OECD Publishing. Data for Canada from 2008 and for the OECD average from 2009. In Canada, some levels of education may be included with others. Public expenditure presented in this table includes public subsidies to households for living costs (scholarships and grants to students/households and students loans), which are not spent on educational institutions.
17. The OECD follows standard international conventions in using the term "tertiary education" to refer to all post-secondary programmes at ISCED levels 5B, 5A and 6, regardless of the institutions in which they are offered. OECD (2008), *Tertiary Education for the Knowledge Society: Volume 1*, OECD Publishing.
18. OECD (2012), *Education at a Glance 2012*, OECD Publishing. OECD average net enrolment rates of ages 3 and 4 as a percentage of the population of this age group. (data from 2009).
19. OECD (2012), *Education at a Glance 2012*, OECD average net enrolment rates of ages 3 and 4 as a percentage of the population of this age group. Year of reference 2010.
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23. OECD (2012), *Education at a Glance 2012*, OECD Publishing. OECD average net enrolment rates of ages 15 to 19 as a percentage of the population aged 15 to 19, year of reference 2010.
24. OECD (2012), *Education at a Glance 2012*, OECD Publishing. Net enrolment rates of ages 20 to 29 as a percentage of the population aged 20 to 29. (data from 2009). This figure includes includes all 20-29 year olds, including those in employment, etc. The Gross Enrolment Ratio (GER), measured by the UN as the number of actual students enrolled / number of potential students enrolled, is generally higher. The GER for tertiary education in Canada in 2002 is 60%, compared to the regional avg of 76% in 2010, UNESCO-UIS (UNESCO Institute for Statistics) (2011), *Statistics in Brief: Canada*.
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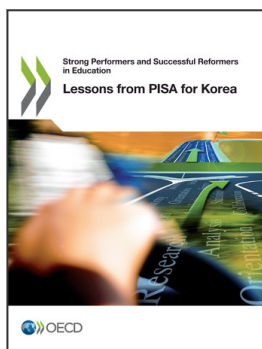
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30. Data missing from *Education at a Glance 2012*, OECD Publishing.
31. Data missing from *Education at a Glance 2012*, OECD Publishing.
32. OECD (2012), *Education at a Glance 2012*, OECD Publishing. Starting salary/minimum training in public institutions in USD adjusted for PPP, (data from 2010).
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